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ORIGINAL ESSAYS.

PAPER ON EPIDEMICS.

*AN account of EPIDEMIC DYSENTERY, in a Letter from
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RY S. WATERHOUSE, of Malone, St. Lawrence Coun-
ty, (N. Y.)*

Pottsdam, St. Lawrence Co. August, 1817.

DEAR SIR,

Agreeable to your request, I hasten to transmit to you a short but imperfect description of the Racket river, together with an account of the Dysentery which prevailed here in the months of July and August, 1814.

The village of Pottsdam is situated on both sides of the Racket-river, where there is a natural water-fall of about ten feet in the distance of twenty or thirty rods. The general course of the river is from south to north : It rises in the hilly country in the north part of Montgomery county and the country adjoining. Near its sources it passes through, and is connected with, a number of lakes of from five to twenty-five miles in circumference. After leaving these it runs with a gentle current until it arrives within about twenty-five miles of this village, where it becomes more rapid, and continuing its course northwardly, it forms a great number

of rapids, cataracts, &c. some of which are very considerable: one in particular, nine miles above this village, is supposed to be 200 feet in three-fourths of a mile distance. When it approaches within about one mile and a half of this place, it spreads out into a pond or lake, extending quite to the village, and is three-fourths of a mile in its widest part.

This lake contains many small islands, which are nearly, or quite overflowed, every spring and fall, by the freshets: two or three of the largest of them are pretty well timbered; the small ones have no timber, but are overgrown with a kind of wild marsh-grass, and swamp-willow, together with some rushes, brakes, &c. Although the waters of this lake cannot strictly be called *stagnant*, yet their stillness is more discernible in consequence of the dams that have been erected for the accommodation of water machinery. By these obstructions the water in the pond or lake is raised about six inches; the small islands, already too low, are still more submerged, and much extent of low lands in the vicinity of the river and lake is annually overflowed. On these low lands lie much fallen timbers in a state of decay. The numerous small islands and the low grounds on the margin of the pond, that are at certain seasons covered with water, would measure from forty to forty-five acres.

In the month of May, the atmosphere was extremely hot and dry; the islands above mentioned were consequently left uncovered. Near the first of June, there were several days of rainy weather, that raised the river about two feet; this was again succeeded by warm sultry weather, with occasional showers of rain.

On going to my usual place of bathing, curiosity led me to examine the state of vegetables on some of the small islands; on the grass of which, I found large quantities of slime or mucus adhering to the grass, so much so, that by putting my hand low down in the water, and collecting a handful of the grass, I could strip from it much of this slimy matter. The water had fallen about six inches, and on that part of the grass which had been overflowed, a black crust had formed that was easily separated. I observed to a gentleman, who was

in company with me, that if the water continued to fall, this matter would prove a fruitful source of disease.

The weather continued hot, with occasional showers of rain; the water was falling, and the wind, for the greater part of the time was southerly.

Our village, you will recollect, is built on both sides of the river, immediately at the northern extremity of the lake; and the ground on which our houses stand is, in general, about on a level with the surface of the islands above; of course, if noxious miasmata were generated on the islands, or on the neighbouring low lands, the south wind was almost constantly raising and blowing them amongst us.

The Dysentery commenced its fatal ravages near the first of July. Its progress was dreadful; for, within a few days after its first appearance, more than half of the inhabitants of this village were more or less diseased with it. The fatal terminations were mostly confined to children, under six years of age. The symptoms were somewhat various, but generally violent, without any apparent previous indisposition.

The patients would complain of violent pain in the hypogastric region after a few of the first discharges, which were very frequent and copious, and almost invariably, in children, put on the appearance of bread pudding mixed with blood. The pulse would soon become remarkably frequent and weak; nausea and vomiting were invariable attendants; the extremities in some cases would become cold, and remain so, within six hours after the attack; the patients inclined to lie upon their face, the knees drawn up to the abdomen, with frequent shrieking as if some sharp instrument had pierced them. Sometimes convulsions terminated the existence of the unhappy sufferer, within twelve hours from the attack. As the disease advanced, the alvine discharges became darker, or of a brownish cast, mixed with a deep green, and attended with an almost insupportable fœtor; the eye appearing vacant and inactive; the tongue was commonly covered with a loose yellow coating, that was easily wiped off; partial cold clammy sweats attended almost every case. These last-described symptoms were present from the third to the sixth day; after that time

the acute distress gradually abated. The prostration of strength was very great, the excretions involuntary, with a cadaverous fœtor. In some instances life was lengthened out to the eleventh or twelfth day, and then extinguished; but it was seldom that a child of three years survived the fourth or fifth day.

My method of treatment was such as is laid down by Thomas and Wilson, but without any good effects.

Having obtained liberty to examine a girl of six years old, who died on the eleventh day, I found the disease extending as far as the great arch of the colon, and the passage almost obliterated by a dark green fungus, which adhered pretty firmly, extending from the rectum, to the arch of the colon. The lower portion of the rectum had actually become gangrenous, as I had before observed in others, where a portion of the intestine was forced beyond the verge of the anus. The inflammation had extended to the parts contiguous to the rectum and colon, viz. the omentum, mesocolon, parts contained in the pelvis, &c. This led me to believe that many of my patients had died in an active state of inflammation.

In conformity with this view of the subject, and having derived no benefit from the practice recommended by Thomas, Wilson, and others, I adopted the following method of treatment with success: If called within twenty-four hours from the real attack, I bled my patient freely, gave a cathartic of rad. rhei, in decoction with soda, sweetened with loaf sugar; made use of cold injections from a solution of sacch. satur. immediately after an evacuation, which generally freed the patient from tenesmus: theses injections were given at almost every evacuation.

I made use of the above-mentioned preparation of rhei, once in four hours, in doses sufficient to procure three or four motions in the course of twenty-four hours; gave small doses of nitre, once in three hours; applied cold applications over the abdomen, &c. After the third or fourth day I gave injections of a decoction of white-oak bark, and made applications externally of the same.

About the first of September I was called to visit a number of patients in the town of Massena, at the distance of twenty-two miles down the Racket river, where I found the dysentery assuming the same appearances as at Pottsdam.

It is very remarkable that the disease did not extend more than half a mile from the banks of the river. This stream in its course from Pottsdam, till within two miles of Massena, is considerably rapid, but here again, it assumes a very gentle current; the banks are low, and the country, for the distance of several miles, is level.

Six miles west from the village of Pottsdam, through a low and very level country, runs a stream called Troutbrook, from two to five feet wide; the water from one to five feet in depth, and dark coloured. In some parts this stream is very slow in its progress; it is considerably filled up with old trees and brush, where its banks are cleared.

I found the Dysentery prevailing on the borders of this stream, and extending eastward, to the distance of one mile and a half. The cases were considerably numerous for the proportion of inhabitants, and many of the terminations were fatal. Those cases that appeared at the distance of one mile, or one mile and a half from Troutbrook, were near low marshy spots of land, through which small streams of water passed.

REFLECTIONS on FEVER, and particularly on the *Inflammatory Character of FEVER*, by LYMAN SPALDING, M. D.*

FROM the first dawn of medical science, nosological arrangement of diseases has been the favourite pursuit of most medical philosophers. It has been the fortune of the immortal RUSH to sap this baseless fabric, and to prove, that nosology is even worse than useless.

"I have said," says RUSH,† "that there is but one fever; of course, I do not admit of its artificial divisions into genera and species. A disease which so frequently changes its form and place, should never have been designated, like plants and animals, by unchangeable characters. The oak tree, and the lion, possess exactly

* This is an abridgement of one of the chapters of the *Institutes and Practice of Medicine* announced in volume III. of the *Medical Repository*, new series.

† RUSH's *Medical Inquiries*, Vol. III. p. 33.

the same properties which they did nearly six thousand years ago. But, who can say the same thing of any one disease? Again; the oak tree has not united with any of the trees of the forest, nor has the lion imparted his specific qualities to any other animal. But, who can apply similar remarks to any one disease?"

Diseases have been variously classed by nosologists. *PIREXIÆ*, however, have always claimed their first attention. This class has been differently divided, but always including the order *febres*, with genera, species, varieties, &c. making from two to eighty different kinds of fever.

We abandon nosology, because its arrangements are *immutable*, and altogether *artificial*; while disease is *changeable* by ten thousand varieties in age, sex, condition, climate, occupation, &c. and by no means capable of being circumscribed by *artificial* classification.

We believe, with Doctor RUSH, that there is but one fever; or, that fever is a unit; but, then, it consists of three grand, imperial, overruling characters, which almost amount to so many separate and distinct fevers.

These are the *INFLAMMATORY*, the *TYPHOID*, and the *MIASMATIC* characters of fever; in each of which, the seat, the cause, the symptoms, and the mode of cure, if not diametrically opposed, at least, differ very essentially from the other: and it is for these reasons, but principally because the method of cure differs so essentially, that we make this division into characters.

No apology is necessary for using the terms inflammatory and typhoid characters of fever; but the miasmatic character is a new term in medicine; we think, however, that no objections will be made to this term, when properly explained.

By fever of an inflammatory character, we mean the *synocha*, the *causus* of authors; and all those cases of fever, in which the inflammatory symptoms shall be paramount to the typhoid, or the miasmatic.

By fever of a typhoid character, we mean the *typhus*, the *putrid*, the *malignant*, the *nervous fever* of authors; and all those cases of fever in which the typhoid symptoms shall be paramount to the inflammatory, or the miasmatic.

By fever of a miasmatic character, we mean the intermittent, the remittent, &c. of authors; and all those cases of fever in which the intermittent or remittent symptoms, arising from marsh effluvia, shall be paramount to the inflammatory or typhoid.

Our arrangements will then, at once, be seen to be founded in practice, and on the essential characteristics of fever.

The inflammatory character of fever is liable to be blended in endless proportion with the typhoid character, till there shall be so nice an equilibrium between the two, as to render it impossible to say whether the fever partakes most of the inflammatory or typhoid character.

The same thing may be said of the blending of the inflammatory character with the miasmatic; of the typhoid with the inflammatory, and with the miasmatic; of the miasmatic with the inflammatory, and with the typhoid; and it is from this blending and mixing of these three overruling characters of fever, that arise all the genera, species, and varieties of fever described by nosologists. Always bearing in mind, however, that the seat, and remote cause of the disease; the constitution, age, sex, condition, and occupation of the patient; the climate, season, and a thousand other incidental circumstances, have an influence upon all diseases.

OF THE INFLAMMATORY CHARACTER OF FEVER.

Our plan for investigating the inflammatory character of fever will be,

1. To describe the disease.
2. To divide the description into stages, suits of symptoms, symptoms, groups of symptoms, &c.
3. To trace each symptom to its source, origin, or seat in some part of the body.
4. By induction, to assign to each symptom its proximate or efficient cause.
5. To examine the symptoms in the order of effect to cause, i. e. from the last to the first, and see if they constitute one continued chain of cause and effect.
6. To assign a seat to the disease itself.

7. By induction, to assign the proximate cause of the inflammatory character of fever.

8. To treat of the cure of fever.

9. To remark on the cure of the inflammatory character of fever.

That we may not be accused of describing this character of fever in our own way, and then explaining the phenomena which we may choose to set down, and thus evade the difficult part of the investigation, we shall select from the books the best description we can find.

We have chosen Thomas's description of the inflammatory fever, or synocha,* for our investigation; because it is the most accurate account we could find in the books; and the symptoms are arranged in the order in which they arise.

"It comes on with a sense of lassitude and inactivity, succeeded by vertigo, rigors, and pains over the whole body, but more particularly in the head and back; which symptoms are shortly followed by redness of the face, throbbing of the temples, great restlessness, intense heat, and unquenchable thirst, oppression of breathing, and nausea. The skin is dry and parched, the eyes appear inflamed, and are incapable of bearing the light; the tongue is of a scarlet colour at the sides, and furred and white in the centre; the urine is red and scanty, the body is costive, and there is a quickness, with a fullness and hardness of the pulse, not much affected by any pressure made on the artery. Its pulsations are from 90 to 130 in a minute, and when blood is drawn, it exhibits a yellowish or buffy crust on its surface. If the febrile symptoms run very high, and proper means are not used at an early period, stupor and delirium come on at a more advanced stage; the imagination becomes much disturbed and hurried, and the patient raves violently."

This description of the inflammatory character of fever naturally resolves itself into two stages.

First, the stage of morbidly diminished action, or debility; corresponding with the cold stage of Doctor Cullen.

*Hosack's edition of the Modern Practice of Physic, by Robert Thomas, p. 36. sec. 3.

Second, the stage of morbidly increased action, corresponding with the hot stage of that author.

The first stage, morbidly diminished action, which is thus described: [I.] *It comes on with a sense of lassitude and inactivity*, [II.] *succeeded by vertigo, rigors, and pains over the whole body, but more particularly in the head and back*; is divisible into two suits of symptoms.

I. The first suit [1] *It comes on with a sense of lassitude* [2] *and inactivity*, is composed of two distinct symptoms; the first of which is lassitude.

As much depends on a right understanding of the terms used, and as we shall lay much stress upon the word *lassitude*, we shall be excused, if we endeavour to ascertain its exact meaning, when used in medical language.

Motherby, we presume, is good authority, and he, in his Medical Dictionary, says expressly, that lassitude is muscular debility; and in this definition he is supported by most of the celebrated lexicographers.

Every writer on physiology and medicine has either alluded to this state of lassitude in the system, or directly described it. Many of them say that lassitude is peculiar to muscular structure; all agree that muscular structure is liable to it.

We think then there is no doubt, that by lassitude is meant *muscular debility*.

Our next point to establish will be, that lassitude is the *first* symptom in the inflammatory character of fever.

In proof of this position, beside the authority of Thomas, we have that of Burserius, Cullen, Rush, Fordyce, Brown, Wilson, and a host of others, as well as the concurrent testimony of every practical physician.

Evidence that lassitude is seated in the muscular structure.

So far as we know, the muscular structure is the only part of the body which is liable to the sensation of lassitude, weariness, or fatigue. Certainly, the bones are not liable to this sensation; neither is the skin, cellular substance, absorbent system, nor the viscera which have no muscular structure, as the liver, spleen, kidneys, &c. We do not know that the nerves themselves are subject to the sensation of lassitude.

When a person has exercised his muscles continually in walking, or labouring for a length of time, he feels a sense of lassitude, i. e. he is wearied, fatigued, tired. He feels an unwillingness to move, the muscles often swell, and become painful to the touch. No one, so far as we know, ever attributed the seat of this sensation to the structure of the nerves themselves; because, at this time, sensation is acute; reflection, vivid; volition, agreeable; but the muscles, from over exercise, show an unwillingness to obey the commands of the will; and even when these commands are obeyed, there is a painful sensation in the substance of the muscles themselves.

We have every evidence in the world, then, that muscular structure is the seat of this sensation.

1st. The common consent of lexicographers in defining lassitude to mean muscular debility.

2d. The proof that muscular structure is liable to lassitude.

3d. The direct proof that lassitude is seated in the muscles.

4th. That no other structure of the body is liable to this sensation.

We will now allude to the several component parts of muscular structure, and ascertain which particular part is liable to the sense of lassitude, so that we can locate this symptom more definitely.

A muscle is composed of absorbents, cellular substance, blood-vessels, nerves, muscular fibres, &c.

The absorbent and cellular systems are not the seat of lassitude; neither are the blood-vessels nor nerves; but that it is seated in the muscular fibre we infer,

1. From the fibre being the peculiar substance which distinguishes muscular structure from all other parts of the body.

2. From those peculiar functions of the muscles, contraction and relaxation, whence may arise lassitude, residing in the muscular fibre itself.

3. From none other of the component parts of muscular structure being liable to this sensation.

We have, then, traced this first symptom in the inflammatory character of fever, lassitude, to its particular seat, *the fibrous structure of the muscular system.*

Our next business will be to assign the proximate cause of lassitude.

To enable us to attempt this with any probability of success, we must examine not only the functions, morbid actions, and vitiated actions of muscular fibres, but also of the nerves and blood vessels which enter into the composition of muscular structure.

To render muscular fibres fit to perform their functions, it is necessary that they should possess,

1. Life.
2. That they should be supplied with nerves.
3. That they should be supplied with red arterial blood.
4. That they should possess, in a state of integrity, the several parts which enter into the composition of a muscle.

We shall not speculate on the matter of life; but consider it by its properties, its effects on the body, by which animated matter is distinguished from inanimate.

Upon duly considering the functions of the nerves, it is apparent that they cannot cause the sense of lassitude experienced in the muscles, at the commencement of the inflammatory character of fever. The same result will follow on an examination of the functions of the red arterial blood. It is presumed that the muscles possess an integrity of structure; therefore, it is not necessary to investigate particularly this subject.

We will now enter upon the consideration of the functions of the muscular fibre itself; since neither the nerves, blood-vessels, nor other component parts of the muscle, are capable of producing that lassitude, which exists at the commencement of the inflammatory character of fever.

The functions of the muscular fibres are contraction and relaxation.

These functions are liable to be increased and diminished; but neither this increased nor diminished action passes the bounds of health; therefore, neither of them can produce that lassitude, incident to the inflammatory character of fever.

The contractions and relaxations of the muscular

fibres are liable to morbidly increased and morbidly diminished action.

In Thomas's description of the inflammatory character of fever, the FIRST STAGE is *not* morbidly increased action; therefore, we need not compare the lassitude of that stage with the class of morbidly increased actions of the muscular fibres.

We will, then, compare the morbidly diminished action of the muscular fibres, with the lassitude in the inflammatory character of fever, and see in what manner they will correspond.

The contractions and relaxations of the muscular fibres are liable to morbidly diminished action, while the life of the fibre remains in its common state.

1. By the influence of the brain and spinal marrow upon the nerves being inordinately small.

2 By sedative applications.

These contractions and relaxations are liable to morbidly diminished action, while the influence of the brain and spinal marrow upon the nerves is in its common state;

By a very great diminution of the life of the muscular fibre itself.

It is evident that the life of the muscular fibres, in the commencement of the inflammatory character of fever, is not diminished by the influence of the nervous system, nor by that of the sanguiferous system; because in both cases, this would require some change to have taken place in the system, before lassitude appeared, which is not the fact.

In what manner can the life of the muscular fibres be diminished, but through the medium of the nervous, or circulating system?

By any cause whatever, which is capable of producing a powerfully debilitating effect upon the muscular fibres themselves; such as sedatives in general, and cold in particular.

Cold, to produce its most powerful effects upon the muscular fibres, must have been preceded by heat; and the effects produced are always in proportion to the difference of temperature, and the suddenness of the change.

Every person knows, that if, after violent exercise

and much heat, he set himself down in a cool place, where there is a current of air, that the life of the muscular fibres will be so changed that the muscles will scarcely be able to contract.

No one would presume that there was, in this case, any previous change in the nervous or circulating system, which thus diminished the action of the muscles. No, it is the effect of the change of temperature upon the life of the muscular fibres. Every person knows that it is the muscles themselves, which thus become stiff; and unless a more serious disease is to follow, that they will become limber again by a little exercise.

We think that we have fully proved, that cold, i. e. a sudden change from a high to a low temperature, can greatly diminish the life of the muscular fibres, so as to produce lassitude and inactivity; therefore, *this very great diminution of the life of the muscular fibres*, we consider as the proximate cause of the sense of lassitude, in the commencement of the inflammatory character of fever.

We are supported in this opinion.

1. From a knowledge that the life of the muscular fibre is liable to a very great diminution.

2. That this diminution will produce lassitude.

3. That no other circumstance occurs at the commencement of the inflammatory character of fever, which could cause lassitude; since neither the nervous nor circulating system is primarily affected.

4. That this diminution of the life of the muscular fibres may be caused by cold; and cold generally precedes every attack of the inflammatory character of fever.

We will now consider the second symptom of the first suit, viz :—

2. *Inactivity.*

Inactivity is sluggishness, unwillingness to move, which is always the case when a person is tired or fatigued.

It is so perfectly plain, that this symptom is also seated in *the fibrous structure of the muscular system*, that it is unnecessary to make any examination.

The proximate cause of inactivity is the same as that

of lassitude, a very great diminution of the life of the muscular fibres.

II. The second suit of symptoms, [1] succeeded by vertigo, [2] rigors, [3] and pains over the whole body, but more particularly in the head and back, consists of three distinct symptoms.

1. Succeeded by vertigo.

Vertigo, Motherby says, is (swimming of the head,) in which the head seems to turn, or at least all things about the patient seem to do so.

The brain is the seat of sensation, and the nerves and blood-vessels the media by which impressions are made on the brain itself. It is not very probable that vertigo arises from the nerves; we will therefore examine what changes of circulation in the brain can produce it. It is well known that the suddenly taking off a distention from the brain will often produce vertigo; as raising up the head suddenly after having held it down for some time. The bleeding from a large orifice while the person stands erect, &c. Then the want of the accustomed stimulus of distention of the brain, by blood, will produce vertigo.

We have traced this symptom to its seat, the brain; its proximate cause, a diminished circulation in the substance of the brain itself.

2. Succeeded by rigors.

Rigour, [rigor, Latin,] a convulsive shuddering, with sense of cold, says Johnson.

This symptom is resolvable into two parts.

1. The sense of cold.

2. The convulsive shuddering.

Cold is a sensation which arises in the brain, in consequence of a certain impression being made on the sentient extremities of the nerves. The sensation produced in the brain does not always correspond with the real temperature of the part; because the influence of the nerves is liable to be changed; and that function of the brain, which is to receive impressions from the nerves, is also liable to be changed; therefore, the sensation produced may be less than the impression.

The sensation of cold is plainly referable, by the patient himself, to the deep seated parts, beneath the

integuments of the body. Chilled through, is a common expression.

We have already shown that lassitude, a previous symptom, consists in the great diminution of the life of the fibrous structure of the muscles; which diminution affects or vitiates the sentient extremities of the nerves that are spent upon the muscles, thereby producing the sensation of cold.

From the very definition of the term rigor, a convulsive shuddering with sense of cold, we should say that this symptom must be seated in the muscles, as they are the only structure which is capable of convulsive action.

From all that precedes, it appears perfectly plain, that the seat of rigors is *the muscular structure*; and it is equally evident, that *the very great diminution of the life of the muscular structure* is its proximate cause.

3. *Pains over the whole body, but more particularly in the head and back.*

When all the functions of the body are duly performed, so easy, agreeable, and pleasant is sensation, that we are scarcely conscious of our existence; but the moment any function is illy performed, then come pains, aches, and a train of woes which fully remind us of our frail state.

There is no difficulty in tracing the seat of this symptom to the *muscular structure itself*. The slightest motion aggravates all the pains, and convinces the patient that the moving powers are affected. In fact, the muscles feel sore to the touch. No person could expect them to remain free of pain, since their life has been almost destroyed.

Proximate cause. *A very great diminution of the life of the muscular fibres.*

Since the stomach is muscular, and very powerfully affected in the onset of fever, we presume that the nervous connexion which exists between that organ and the back of the head and neck, by means of the par vagum and spinal accessory nerves, the intercostal and cervicals, will account for the pains being particularly located in that place.

SECOND STAGE.—The stage of morbidly increased action, or the hot stage, is divisible into three suits of symptoms.

1. Suit; [1] *which symptoms are shortly followed by redness of the face*, [2] *throbbing of the temples*, [3] *great restlessness*, [4] *intense heat*, [5] *and unquenchable thirst*, [6] *oppression of breathing*, [7] *and nausea*.

This suit is composed of seven distinct symptoms.

1. *Which symptoms are shortly followed by redness of the face.*

The increase of colour of the surface of the body is so evidently dependent on an accumulation of the blood in the minute arterial ramifications, that no investigation becomes necessary, to assign *the circulating system* as the seat of this symptom.

The proximate cause is equally evident, *morbidly increased action of the circulating system*, particularly of the minute arterial ramifications.

2. *Throbbing of the temples.*

The seat of this symptom is clearly in *the arterial system*; for it is the temporal arteries which beat, and the superficial branches may even be seen beating with the naked eye.

The proximate cause, *morbidly increased action of the circulating system*.

3. *Great restlessness.*

By this we understand a restless uneasy sensation, accompanied with a desire to move. The patient feels the time gone through infinitely long; a minute seems to him more than an hour; he cannot fix his attention on any object; he does not lie easily, and finds no relief in changing his posture.

Doctor Fordyce says, there are two causes of this great restlessness; the one an accumulation of blood about the heart; the other, a distension of the small vessels throughout the system.

Then we have no difficulty in locating this symptom in *the circulating system*. Its proximate cause, *morbidly diminished action*, when it arises from an accumulation of blood about the heart; *morbidly increased action*, when it arises from a distension of the collapsed vessels,

4. *Intense heat.*

This is a very important symptom, no less so than to have given name to fever; for Galen defines fever, preternatural heat. But, he says, the principal, and, as it were, pathognomic symptoms are, the ardent heat and excessive thirst.

I believe it will not be doubted that *the circulating system* is the seat of this symptom, and that its proximate cause is *morbidly increased action* in that system.

5. *And unquenchable thirst.*

Thirst arises from a heat, dryness, parchedness, clamminess, or peculiar irritation of the mouth and fauces. The seat of this symptom is apparent, *the mouth and fauces*. If we choose to ferret out this symptom in its hiding places, and to locate it more definitely, we should find no difficulty in pursuing it to the minute arterial ramifications.

The proximate cause of thirst, whatever can produce a heat, dryness, &c. in the mouth and throat. Intense heat, and that of a morbid kind, will certainly produce all these effects. We have already examined the production of this heat, and such is the affinity between the mucous membrane of the mouth and throat, and the other parts of the body, particularly the skin, that whatever produces intense heat on the surface, or throughout the whole body, must of course produce it in the mouth and fauces; hence there can be no hesitation in assigning as the proximate cause of this symptom, *morbidly increased action of the circulating system*.

6. *Oppression of breathing.*

That a hurried circulation is capable of producing oppression of breathing, will be perfectly evident to any one who will exercise violently for a few minutes. No doubt, the oppression of breathing, in fever, will differ somewhat from that which arises from violent exercise; because, in the former case, the muscles of respiration, the lungs themselves, and every part of the body, are labouring under disease, and no part performs well its functions; while, in the latter case, the whole body is supposed to be in health.

This symptom is evidently seated in *the lungs*; and its

proximate cause is *morbidly increased action of the circulating system.*

7. *And nausea.*

Nausea is a less degree of the same action, which produces vomiting. Vomiting is an inversion of the action of the pharynx, esophagus, and stomach, by which the contents of the stomach are discharged by the mouth. Nausea is a less degree of inversion, or rather a tendency to an inversion, in which the contents of the stomach are not discharged, but there is a disposition to vomit.

Vomiting, and of course nausea, are opposed to the common function of the œsophagus, deglutition, which is performed by the natural and successive contractions of the fibres of the muscular coat of the pharynx and esophagus.

Nausea being a disposition to an inversion of the regular action of the esophagus and pharynx, there is no difficulty in tracing this symptom to its seat, in *the muscular coat of the stomach, œsophagus, and pharynx.*

Vomiting and nausea are well understood to arise from the exhibition of emetic drugs, which diminish the life of the muscular membrane of the stomach, œsophagus, and pharynx; from any cause whatever, which shall produce a great diminution of the life of this muscular membrane; from offending matters in the stomach, &c.

Then the proximate cause of nausea, in the inflammatory character of fever, may be *either a very great diminution of the life of the muscular coat of the stomach, œsophagus, and pharynx; or an accumulation of offending matters in the stomach.*

The diminution of the life of the muscular coat of the stomach, œsophagus, and pharynx may arise from the same cause which produces the diminution of the life of the muscles in lassitude. This is probably the proximate cause of nausea, when it arises as an early symptom of fever; but when it comes on later, it is probable that the returning sensibility of the muscular coat of the stomach, (from the return of the circulation,) is operated upon by the offending matters in the stomach.

II. The second suit of symptoms in the second stage of morbidly increased action.

[1] *The skin is dry* [2] *and parched*; [3] *the eyes appear inflamed*, [4] *and are incapable of bearing the light*; [5] *the tongue is of a scarlet colour at the sides, and furred, and white in the centre*; [6] *the urine is red and scanty*, [7] *the body is costive*, [8] *and there is a quickness, with a fullness and hardness in the pulse, not much affected by any pressure made on the artery*. [9] *Its pulsations are from 90 to 130 in a minute*, [10] *and when blood is drawn, it exhibits a yellowish or buffy crust on its surface*.

This suit is composed of ten distinct symptoms.

1. *The skin is dry.*

The skin is kept moist by a fluid, thrown out by the exhalent arteries, and called insensible perspiration.

The functions of the exhalent arteries are liable to morbidly increased action, producing very profuse sweat; and morbidly diminished action, giving a very dry skin. The seat of this symptom does not admit of a doubt; *the exhalent arteries*, which are a continuation of the arterial system.

The proximate cause is, *morbidly diminished action in the exhalent arteries*, arising from the cold stage of the fever.

2. *The skin is dry and parched.*

By a parched skin is meant, a skin that is dry, and has a peculiar heat upon it. We have just shown that a dry skin is referrible to the exhalent arteries; and we have before traced the source of animal heat to the circulating system; therefore, this symptom is evidently situated in *the circulating system*. The proximate cause is, a *diminution of perspiration*, from the exhalent arteries not having yet recovered their vigour; and an increase of heat of a peculiar nature, arising from a morbid increase of circulation.

3. *The eyes appear inflamed.*

Inflammation is a well-known effect of the circulation; therefore, it requires no investigation on our part to locate this symptom in *the circulating system*. Its proximate cause is equally well understood, *morbidly increased action*.

4. *And are incapable of bearing the light ;*

This is well known to be the effect of inflammation, and is therefore referrible to the same seat and cause as the last symptom.

5. *The tongue is of a scarlet colour at the sides, and furred, and white in the centre.*

We have already shown that unquenchable thirst, one of the preceding symptoms, arises from a heat, dryness, parchedness, clamminess, or peculiar irritation of the mouth and fauces. The tongue, as composing a part of the mouth, is instrumental in producing the unquenchable thirst. The proximate cause of thirst is, increased action of the circulating system. We presume that the changes in the tongue may likewise be referred to the circulation ; because the tongue has a disposition to be furred whenever the circulation is irregular, although fever may not be present, and the red colour of every part of the body is owing to the blood. But I confess myself too ignorant of the pathology of those changes in the tongue, to be able to trace them to their particular seat, or to assign to them any proximate cause which shall be satisfactory.

The seat of this symptom is *the tongue* ; and its proximate cause is probably referrible to *the circulating system*.

6. *The urine is red and scanty.*

All the secretions are from the blood, and are more or less under the influence of the circulation. It is a well-known fact, that when the circulation is weak and languid, that the urine is copious and light coloured ; but when the circulation is brisk and active, the urine is in less quantity, and of a higher colour. It is not necessary then to go into a minute physiological investigation of the secretion of urine, as we presume no one will doubt that *the kidneys, particularly their secretory arteries*, are the seat of the symptom, and that the proximate cause is, *morbidly increased action of the circulating system*.

7. *The body is costive.*

The seat of this symptom is apparent, the alimentary canal. One function of this canal is to discharge the *fæces* at regular periods. In order to the due perform

ance of this function, it is necessary that the lower bowels should be properly lubricated by the secretions from the mucous glands, situated in the coats of the alimentary canal; by the glands situated without the coats, but whose ducts enter the canal; and by the exhalations from the exhalent arteries, which open into the canal.

These secretions and exhalations are liable to be increased, diminished, &c. When increased, the contents of the lower bowels are augmented, and purging follows, either from the stimulus of distention, or from the irritation of the feculent matter. On the other hand, when these secretions and exhalations are diminished, the contents of the lower bowels are not augmented as usual; therefore, the stimulus of distention does not occur at the regular period, the irritation of the feculent matter is not so great as usual, and from the want of lubricity, the contents do not so readily pass down; hence costiveness.

The seat of costiveness is the *alimentary canal*; the proximate cause, diminished secretion and exhalation; which arise from the morbidly diminished action of the circulating system that existed in the first stage of the fever. It scarcely need be said, that the secretions and exhalations are from the blood. Perhaps the very great diminution of the life of the muscular structure, which existed previously, prevents the ready action of the muscular membrane of the intestines.

8. *And there is a quickness, with a fulness, and hardness in the pulse, not much affected by any pressure made on the artery.*

The seat of this symptom is, *the heart and arteries*; the proximate cause, *morbidly increased action*.

9. *Its pulsations are from 90 to 130 in a minute.*

This symptom ought to have been connected with the last. It has the same seat and proximate cause.

10. *And when blood is drawn, it exhibits a yellowish or buffy crust on its surface.*

In our reflections on the blood* we think we have fully proved, that all the changes in the blood take place within the circulating system; and that the yellowish or

* Contained in the Institutes and Practice of Medicine, not yet published.

buffy crust is produced by the morbidly increased action of the heart and arteries; particularly, by the muscular structure of the ventricles.

Then we shall assign *the heart and arteries* as the seat of this symptom; and their *morbidly increased action*, as its proximate cause.

III. The third suit of symptoms in the stage of morbidly increased action.

[1] *If the febrile symptoms run very high, and proper means are not used at an early period, stupor and delirium come on at a more advanced stage; [2] the imagination becomes much disturbed and hurried, [3] and the patient raves violently.*

This suit is composed of three distinct symptoms.

1. *If the febrile symptoms run very high, and proper means are not used at an early period, stupor and delirium come on at a more advanced stage.*

Stupor and delirium have their seat in the *brain*. On reference to the functions and actions of the brain, we find that stupor and delirium will arise from a long continuance of *morbidly increased action of the heart and arteries*, which is their proximate cause.

2. *The imagination becomes much disturbed and hurried.*

This symptom is in train with the last; it is a part of the same diseased action, and is clearly referrible to the same seat, the *brain*; and to the same proximate cause, *morbidly increased action of the heart and arteries*.

3. *And the patient raves violently.*

This is but one of the symptoms of delirium, and like that, is located in the brain, and has for its proximate cause, *morbidly increased action of the heart and arteries*.

(*To be continued.*)

A DISCOURSE on the MEDICAL CHARACTER, by THOMAS D. MITCHELL, M. D. of Philadelphia.

ON no topic whatever, is popular sentiment more erroneous and ill-judged, than with regard to the true importance of the medical character. This mistake has had its origin, in the too prevalent custom of estimating

persons and things, not according to their intrinsic value, but in proportion to what they seem to be worth. Thus, the man who talks incessantly, though to no good purpose, not unfrequently acquires a character of consequence, from no other consideration, than his volubility; while the man of sterling sense, who seldom speaks but as occasion requires, never rises above mediocrity, except in the estimation of a few who know how to appreciate real merit. In this way, the popular regard of the medical character is founded on some contingent and not always laudable circumstance, rather than on the solid sense and respectable acquirements of the individual. This evil is daily increasing, not only to the injury of the community, but also to the sore mortification of many young physicians, of more than ordinary worth. How are their generous sensibilities wounded, and every finer feeling of their souls blunted, on beholding arrogant ignorance occupying the native seat of intellectual excellence, simply because the one is decorated with some tinsel glare, which the other has not. Why are these things so, and how may the evil be remedied? An attempt to answer these queries shall occupy the remainder of this discourse.

The evil alluded to originates from the ignorant or erroneous judgment of parents and guardians, in the disposal of those placed under their care and direction. A man in affluent circumstances, who has several sons, determines, without any reference to mental capacities, that one of them shall be a divine, another an attorney at law, and a third (for they must all be professional men) a physician; thus establishing professional disgrace, by parental law. Far better was the mode practised by some of the Chinese, who in order to judge of the peculiar mechanical fitness of their children, first intoxicated them, and then placing before them the tools of the different trades, observed what tools they preferred, allotting them a trade in agreement with their preference. In this way, there was at least a chance, that the boy and his trade might be adapted to each other, and it was beyond a doubt, quite as rational a mode, as that which is pursued among us in the present day. I have known two young men of the same family, sent to professional

studies, the one to the ministry, the other to medicine, with no other qualifications, than the most profound ignorance, and a plentiful stock of assurance, who, beyond all controversy, were never destined to a higher honour, than that of tilling the ground. And such men, let it be remembered, are the very persons who most readily gained the popular favour. For if they are without mind, they can assume a sort of manners, which, although destitute of any definite quality to recommend them, receive the appellation of *agreeable*; as fools are, at least, capable of displaying, what are styled agreeable or accommodating manners. Let it not be supposed, that these remarks are designed to depreciate the importance of an affable deportment, of gentleness and modesty of demeanour, in short, of any quality that can endear a physician to his patients. All these are necessary, and without them, no man, however great his professional skill, ever arose to eminence and true respectability. But the error lies in mistaking these as the medical character itself, instead of regarding them as mere appendages.

It would seem, that many persons consider the science of medicine, as of all other kinds of knowledge, the most easy of attainment. Hence it is, that so many worthless creatures have been patronised as physicians, who never knew any thing of the profession. So infatuated are the people generally, as to suppose it a matter of no moment, to ascertain whether a man who calls himself a Doctor, has ever received a medical education or not. Nay, further, some are so wilfully perverse, as to countenance quackery in all its forms, with the fullest evidence of that quackery before their eyes. This then is surely an evil of alarming magnitude; an evil which robs the worthy of their due, to bestow favours on those who merit nothing but contempt; an evil which strikes at the very foundation of good order and the happiness of mankind. These remarks necessarily lead to the point next to be considered, viz. How may this evil be remedied?

I know of but one mode, by which to effect so desirable an object, and that is, by forming one universal standard, by which to judge of the medical character correctly. This general reply will be better compre-

hended, by arranging my ideas on this subject under two distinct heads, viz. the regulations of Universities and Legislative Agency.

First—*Of the Regulations of Universities.* No person, whatever, should be admitted to the preliminary forms of an university, with a view to receiving a medical degree, who had not previously submitted himself to the examination of the faculty to decide on his fitness for the study and profession of medicine. I would have this matter adjusted, precisely in the way in which boys are usually dealt with, previously to becoming apprentices to learn a trade. For example; no master-workman would be so mad, as to take an apprentice to learn the trade of making and repairing watches, whose vision was confessedly very imperfect. Nor would he be deemed a suitable person to learn a trade requiring an erect position of the body, whose inferior extremities were so deformed, as to render the act of standing constantly altogether impracticable. Nevertheless, there are trades for which such persons might be well adapted, and in which they might become perfect masters. So in medicine; a man, whose mental vision is grossly obscure, ought for no consideration whatever, to be admitted to the study of a science, a proper acquaintance with which, requires the constant exercise of vigorous powers; yet he might, by diligent application, become a respectable mechanic, or an useful instrument, in causing the earth to bring forth its fruits in due season.

The education which a young man has received, previously to entering upon medical studies, is a matter of great moment, and should be more scrupulously noticed by Universities. Herein College regulations are shamefully deficient, and until reform takes place, the evil can never be remedied. It is true, that candidates for a degree, are required to exhibit their theses correctly spelt; but it is notorious,* that many persons have graduated, who did not write a syllable of their dissertations. So undeniable is the fact, that I have known men who passed through the ordeal of examination, with tolerable ease and some credit, whose private letters of cor-

* I speak now particularly of the University of Pennsylvania.

respondence and the original manuscript of their theses in their own hand writing, would be regarded as highly disgraceful to the profession. This remark applies not only to the crudity of the matter, but also to the spelling of common-place words, and the most glaring grammatical errors. I am not desirous of compelling every man who wishes to study medicine, to acquire a classical education, in the full sense of that term. But the least that ought to be expected and required, is such an acquaintance with the English language, as would enable the individual to appear before the public, whenever he might find it convenient to do so, with credit to himself, or, at least, in such a dress as not to disgrace the profession whose badge he wears. "Every professional man," says Lord Bacon, "is bound to contribute something to the improvement and advancement of his profession." This, in medicine, is to be effected by the communication of interesting facts, or ingenious speculations, for the benefit of medical men generally. But how can a man thus contribute to the advancement of the profession, whose essays, were he to write any, would necessarily involve himself, and, in some measure, his brethren, in disgrace? Such men would act wisely, were they never to write.

Let it then be regarded as a *sine qua non* of admission to the study of medicine, that a man shall give satisfactory proofs, that he is at least an English scholar. I need not point out a way to obtain those proofs, because it is obvious, that no mode can so well ascertain any fact of this nature as a personal examination.*

* It is much to be regretted that classical studies are imperfectly attended to. Hence, the indiscriminate admission into our Universities of young men, who are neither Greek, Latin, nor English scholars. Another deficiency of preparatory instruction should also exclude them from medical colleges; it is that of logical or mathematical branches of philosophy.

Our ancestors had wisely devised to exercise the intellectual faculties and judgment, by scholastic or Aristoteletic treatises on the art of reasoning. To these which have fallen into disuse, metaphysical subjects and mathematics have been substituted. The latter, if carried to a sufficient extent, would be sufficient, we should even say, indispensable. There is no profession, the practice of which requires more abstract and correct reasoning, nor can there be more important objects for a judicious and well exercised mind, than those which are to be under the control of a physician and surgeon. Without a sound understanding, an active and retentive memory, and habitual power of comparison, no man can be a good physician. If he proceeds, let him beware—the patients and himself will equally suffer. Death, under the sod, will conceal the first; but on the long race, and amidst the many

This preliminary point having been adjusted, it should next be inquired, if any and what unfavourable traits of character attach themselves to the individual. Then the difficulties under which young physicians labour in acquiring business, together with the other perplexities of a medical life, should be faithfully delineated; and if the resources of the applicant should be insufficient to maintain him decently for several years, subsequently to receiving a degree, he ought by all means to be advised not to enter upon medical studies. This I conceive to be a matter of immense consequence; the perplexities incident to a young physician, whose funds are deficient; the embarrassments under which he labours paralyze his mental exertions, and often arrest the tide of his usefulness, or stop its course altogether.

Although a diploma carries with it presumptive evidence, that its possessor was fairly entitled to it, still this conclusion is not always founded in truth. Nor is it to be taken for granted, that he who never received a diploma, is, on that account, an ignorant pretender. But it is possible to establish and enforce such regulations in a University, as shall give to diplomas their full force in all cases. A man may, by dint of a retentive memory, pass a good examination, and procure a degree, who is very unfit to practice medicine. But if every candidate were required to produce satisfactory testimonials of his assiduity, during the term of years prescribed for study; if he were obliged to give sufficient evidence of punctual attendance on the practice of hospitals; and if, in addition to these pre-requisites, he were called upon for proofs of good moral character, a diploma conferred under such circumstances might be justly esteemed as good evidence of qualifications to practice medicine.

The last point I shall notice under the head of University Regulations, is to require of every person on re-

chances of life, poverty or vice must remain the ostensible results of his many accumulated errors. Should he be a crafty man, and with more cunning obtain a temporary rank among the favourites of a fashionable world, of fortune, and even of fame, let him remember, that the first is full of rivals, the second is not easily obtained by an injudicious mind, and the last hardly crowns the name of one or two in every age.....*Edil.*

ceiving a medical degree, some sort of obligatory declaration, in the nature of an oath or affirmation, that he will discharge the duties of his profession to the best of his ability, bestowing upon his patients all that care and solicitude which the importance of health demands. And so soon as a physician violated this declaration, by any sort of mal-conduct, he should be reprimanded by the authority of the University, which conferred upon him his degree; and if this failed of reforming him, he should, at a limited period, be denounced as having forfeited all claims to the medical character. I conceive this to be an important regulation, and it is one of the remnants of ancient usage which it had been well to have retained in every code of University regulations.

Attorneys at law are obliged to submit to a similar practice, and even ministers of the gospel are pledged for the faithful discharge of their trust in a way that is considered equally binding with the solemnity of an oath. But I would insist upon it in the profession of medicine, because there are occasional temptations to act unjustly, which do lead some physicians astray, and thus cause them to bring reproach on the name by which they are characterized. Were such men bound by an oath to act with justice and impartiality, and were they conscious that the violation of that engagement would be the forfeiture of their standing and character, there would be less of mercenary trading in medicine, and fewer instances of regular-bred quackery. There are some men who, from their natural disposition, are led to act honestly in their profession; and if others are not thus disposed, (and experience has evinced this to be a truth) it is highly proper to establish some rule by which they may be compelled thus to act. In my opinion, a noble independence of mind, a fixed determination to act agreeably to principle, rather than in the least conform to popular caprice, so as to sacrifice that principle, are traits which naturally belong to the true medical character. What said the illustrious Sydenham on a subject nearly allied to this: "Upon deliberate and equitable reflection," (says he) "I find it better to assist mankind, than to be commended by them, and highly conducive to tranquillity of mind; popular applause

being lighter than a feather or a bubble, and less substantial than a dream." And, again: "Provided I discharge the duty of a good citizen, and serve the public to the prejudice of my private interest, what matters it, if I gain no reputation thereby? for, upon due consideration, my endeavouring to secure a character, who am now advanced, in years, will, in a little time, be like providing for a non-existence; for what will it avail me after my decease, that the eight letters which compose my name, should be pronounced by those who will be able to frame no idea of me in their minds." This is the language of a man whose name will be revered by posterity, just in the same proportion as purity of motives and honesty of character shall predominate. He well knew, that to maintain his integrity, and to act the part of upright independence, was the direct road to public censure; but he regarded a "conscience void of offence," as far preferable to all the false friendship which the wiles of sycophancy might have procured for him. The language of his conduct is to every physician, *go and do thou likewise.*

Of Legislative Agency.—As a means of establishing correct views in relation to the nature and importance of the medical character, legislative agency might effect more than could be accomplished in any other way. Because the force of law is felt by all classes of the community, and therefore must be acknowledged. And in this enlightened era, as it has been called, one would suppose that a legislature would so far partake of the general illumination as to adopt measures indicative of the boasted improvement of society. But what is the state of the case, in relation to Pennsylvania? I blush for the honour of my native state, when I think of her degradation, and sigh for happier times, but fear, alas! I sigh in vain.

Of what avail are the best regulations of an University, if they receive not the aid of legislative authority? Of what consequence are its rules, if by any neglect of the legislature, those who are educated within its walls, shall be degraded to the same level, in public estimation, with the most ignorant and mercenary impostor? Can they give effect to the medical character,

where public opinion is not properly regulated by the fostering care of those whose province it is, by their public acts, to furnish to the world an index of the character of the people they represent? By no means.

As this discourse is designed, in some measure, for the inspection of those whose business it is to enact regulations for the government of society, I shall make a few remarks with a view to expose the vice of empiricism. Since no evil can be imagined, much less named, the baneful effects of which are so disastrous as those attendant on empiricism, it behoves every benevolent man to exert his influence to suppress so direful a scourge. This formidable fiend, viewed in a proper light, comes in a shape the most terrific, diabolical, and destructive. It enters with a front of brass the territories of life, and sways the scepter of ruin among the family of mankind, with a relentless hand. Strange that men should allow themselves to be deceived in a matter of such momentous concern; but however strange, it is awfully true. Their apathy might lead to the supposition, that life was a thing of inferior importance, of less value than houses or lands. If a man has a property of trifling value at stake, he does not apply to a tinker to defend his cause before a court and jury, but goes to a lawyer who has been regularly educated to his profession, and in so doing he acts wisely. But how is it when life is the subject of hazard? Do we not often find him, at this momentous crisis, acting the most foolish part? He seeks relief from one who is quite as ignorant of the human structure as is a savage of the mechanism of a watch. Did such a man propose building a house for the convenience of his family, and were a baker sent to him for the purpose of furnishing an estimate of the expenses incident to the undertaking, what would be his conduct? Or to finish the absurdity, were you to recommend a son of Crispin, as a suitable person to build the house, would he not regard your officiousness as highly insolent, or laugh you to scorn for your folly? And yet this very man, when his life is in jeopardy, can entrust it to the care of a pretender, who is just as capable of treating diseases as is a shoemaker to build a house; and although he would think it the plainest evidence of ideot-

ism, to employ the latter, has no hesitation in giving countenance to, and even patronising, the former. *O tempora, O mores!* when will the people learn wisdom, and get understanding?

I shall now premise that every man is a quack, in the full sense of the term, who cannot produce something more than his own *ipse dixit* to prove that he is not. The simple act of calling a man a *Doctor*, whether performed by an individual, or officially by any branch of government, is no more evidence that he possesses medical qualifications, than if he were called a *horse*. He must have studied medicine to such an extent as to have become acquainted with its principles and practice, before he can merit the appellation of a regularly educated Physician. Independently of these prerequisites, he cannot aspire to a better title than that of a *quack*. The way, therefore, to remedy the evil is obvious: Suffer no man to practise medicine but he who is qualified for that important business. Give to our medical colleges the privilege (and it is a legitimate one) of prescribing the qualifications which a man ought to have, in order to practise medicine with credit to himself, and advantage to the community.*

* It is a kind of empiricism for a practitioner who, being eminent in one of the branches of the healing art, would claim an equal authority in all as a physician, a surgeon, or as an accoucheur. This extreme affectation does not comport with the space of time, and share of opportunity or talents, allowed to men. There was another extreme in former ages, when the three branches were distinct in education, as much as in rank and dignity. Literary instruction was, of course, denied to surgeons, who were thereby held low by physicians under their authority, and with some sort of contempt; it was thought, nevertheless, that one branch was enough for any man. It has been more wisely devised in our enlightened age, that all branches should be united in one uniform and general system of instruction, as connected, and rendered inseparable by the same principles, same objects and physiological laws, never to be isolated but by the peculiar fitness with which a student feels more inclination to one or two of them. Provided he establishes his choice on the important foundation of adequate talents, he will a thousand times in his life highly estimate his qualifications rendered proportionate to any urgency and necessity of practice in all cases of disease. But in large cities, where a sufficient share of practice can be made up according to dispositions and choice, and where there is always more or less concurrence of talents and skill, the public have right to expect that various branches in the same profession might have variously fixed the choice of different individuals, who would thus give a decided character to their practice. No disparagement can arise to them from such discrimination; the surgeon may remain still entrusted with the medical care of his operated patient, because he is instructed in the theory and practice of medicine. On the other hand, the physician qualified to be a competent judge of the expediency and necessity of operative process, and of its easiest means, gives up the mode and conduct of it to dexterous and experienced hands. The superiority of one over the other, in the execution of his art, is thereby ac-

But the question may be asked, ought young men to be compelled to travel many hundred miles, during several successive years, in order to attain the lectures of an University? I answer, that notwithstanding all the difficulties in the way, this would be the safest and best course to adopt. But if the measure should be deemed too rigorous, let Universities have the power of appointing examining committees throughout the country, who shall decide on the merits and qualifications of those who may wish to become physicians. And this being done, let the arm of the law be extended against every man who, instead of entering the medical profession by the regular door of admission, would seek to find his way thither by some other route. And to sever entirely every plea for irregularity, let it be an indictable offence, punishable with at least six months imprisonment, for any person to practise medicine as an occupation, who had not submitted in some way to the University regulations, thus supported by legal authority. Perhaps even this rigor would not suffice; if so, let the quack, who would lose one or more patients by death, be liable to a criminal prosecution for manslaughter, no further evidence of the crime being required than the simple fact of the patient's death. This may be called *summary justice*, but I know of no justice, too exact for men who are regardless of the lives, health, and happiness of their fellow creatures.

knowledge, as is the competency of the other, in the decided or described operation, in the preparatory measures, the cautions or modes of treatment, and the favourable or fatal prognostics; all important points, than which none could be more clearly defined, as appertaining to medical authority. The physician and surgeon, therefore, differ too much from each other in one respect, to claim equal authority in every branch, and their pursuits, although different in another, are too much connected and depending from the same theories, governed by the same laws, subject to the same dangers for want of prudence or judgment, to authorize their separation in the momentous decision of a terrible operation, much less in the ultimate management of mutilated bodies, of disturbed and altered constitutions, of newly and forcibly organized functions or secretions, &c.

We were led to these remarks better to evince a liberal sense of the respective claims of authority, for practitioners in different branches, who should never separate on the ground of self sufficiency. We regret that the principal offices of the medical and surgical departments in our hospitals, should not be united in important and ordinary consultations. We equally deprecate this adopted mode in the consultations of private practice, where it does not hold good, invidiously creating superior or inferior orders of practitioners; sometimes much to the unmerited neglect of age, experience, and talent.

Edit.

A few desultory remarks on the profession generally, shall close this discourse. And first, I would observe, that it should be the pride of every physician who has been regularly educated, to conduct himself in a manner becoming his profession. To gratify the peculiar notions, and even to indulge the prejudices of patients, may be admissible in some instances ; but the practice should never be allowed, where it would necessarily oppose just and established principles. A reverence for religion, should at all times characterise the profession ; and no man will ever be the less respected, who not only has a regard for, but who practises the duties, which religion inculcates. The medical character is a compound of many parts, neither of which, separately considered, ought to stand in place of that character. It includes not only a learned acquaintance with the science of medicine, but likewise all that is meant by the term virtue. According to my views, therefore, no man should be viewed as a just specimen of the medical character, whose habitual conduct furnishes perpetual evidence of dereliction from any one of the rules of morality. Intemperance, non-adherence to the truth, actual dishonesty, or baseness of any sort, in proportion to the extent in which they are practised, should lessen the claims of any and every man to the honour of the medical character ; and as I have mentioned in a former part of this discourse, for all such vices, a physician should be subject to the discipline of the University from which he received his degree.

These remarks are submitted, with a consciousness on the part of the writer, that his views may be imperfectly drawn ; but, at the present moment, I am of opinion, that if the course I have detailed, were adopted, and carefully observed, the period would soon arrive, when popular sentiment would elevate the medical character from its degradation, and place it on that exalted eminence, which it can never cease to claim as its legitimate right.

MEMOIRE sur l'usage de la NOIX VOMIQUE lu devant la
FACULTE de MEDECINE, &c. *Bulletin*, 1, 2, 3, & 4,
—1816—1817. Par M. FOUQUIER, Medecin de l'Hô-
pital de la Charité, à Paris.

AN ESSAY on the use of the NUX VOMICA for PARALYSIS,
&c. an Extract.

(Translated for the Medical Repository.)

WE have seldom met in the European recent journals, a more interesting subject for medical practitioners, on account of the terrible complaint which they are invited to combat, and of the powerful agent which is now offered as its remedy. The author, than whom few experienced masters in the healing art could command more authority, tells us, however, that he has had no opportunity yet to carry on his investigation through all the experimental authority that is required, and which time only can bring forth. He hopes that the friends of medical science will join with him to fix their estimation of a substance, as curious in its operation, as important in its virtual properties.

We will, firstly, inform our readers, that the *nux vomica* is the fruit, seed, or *drupa*, of an arbust, commonly called, *strycnos nux vomica*, from India, it is a 5-dria, 1-ginia, and of the character, *apocineæ*.

It is remarkable that other species of the same vegetable production are defined as highly poisonous, to wit: *The strychnos upas teuté*. This is the famous tree of Java, the poison of which has been experimented upon some years ago, by Mess. Raffineau, Delisle, and Magendie, of Paris.

The strychnos amara ignatia, *drupa unilocularis*. Some singular account of this has been given by Dr. F. Pascalis. Vid. Medical and Philosophical Register, Vol. 1.

There are, besides, the *S. colubrina* from India; the *S. potatorum* of Madras; the *S. lucida* of New-Holland, and the *S. brachiata* of Peru, all of which are equally thought poisonous.

It is not the first time that the *nux vomica* has been used and tried for various human complaints. It had long ago acquired some reputation in Germany and Italy, for intermitting fevers and dysentery. A few English physicians, (Murray and Loss,) had also suspected that this substance contained some virulent principle capable of destroying muscular energy. These ideas were as yet incorrect, and as the exhibition of the *nux vomica* had been so often attended with symptoms of spasms and vomiting, &c. it had been laid aside in the drug stores, where it had no other repute but that of being a bane against rats, and other kind of vermin, untill Mess. Raffineau Delisle, and Magendie, published the results of their experiments on divers animals, of the poison of the upas. These philosophers proved that this strychnos had in a great degree, and probably in common with others, the power of creating in man and brutes an artificial tetanus. It is with this progress of acquired knowledge, that Dr. Fouquier inferred that a temporary tetanic action might become useful in paralysis, by creating a new action in the muscles of palsied limbs. He experimented, it appears, not only to define the singular agency of the *nux vomica*, but to estimate correctly its safety and importance as a remedy. He was also assisted by other eminent physicians, who, all together, obtained a great number of remarkable and encouraging results; with the names, therefore, of Mess. Husson, and Asselin, physicians of the Hotel-Dieu, M. Fouquier, physician of the Hospital "La Charité," feels sufficiently authorized to present to the faculty the memoir which is now the object of our attention. But before we select for our readers a few of the most prominent cases, proving the efficacy of the *nux vomica*, it will be necessary to make them acquainted with the views of the author, on the effects of the remedy on the human system, on the nature and form of the disease to which it can be best applied, on the specific itself, and its mode of exhibition.

1. In less than half an hour, and no later than one or two, the effects of the *nux vomica* are felt, and according to the dose, the voluntary muscles are to experience strong and permanent contractions; but these are in most cases more readily received in the parts or limbs

that are struck with palsy; it increases in them, by continuation of the remedy, to a degree of tetanic stiffness.—As an exception to this first agency, we are told that the diaphragm is not susceptible of it; hence it is inferred, that this artificial tetanus could never become fatal to any body, and as a singular fact, that the spasmodic contraction will be determined in the palsied muscles in preference to the healthy ones, and in proportion as they are more deprived of motion or feeling; it is equally difficult to explain why this spasm is accompanied with flexion in the thoracic parts and limbs, and with extension in the abdominal? Nevertheless, the patient is then not so far incommoded but he can sleep, even while he remains under it, with startings and subsultus tendinum. Such state cannot be effected but by large doses of the nux vomica, unless a peculiar predisposition might excite them; in either way, they add much to the efficacy of the remedy.

After having thus considered the general operation of the remedy, the author comes to exceptions or deviations from it, which are different, and shape themselves, to a sense of stricture in the chest, or of oppression in respiration; or a thrilling, a throbbing, and starting; or an internal sense of unpleasant heat; or an increased sensibility all over the parts deprived of motion. All these are salutary and encouraging signs of the efficacy of the nux vomica.

There are other secondary results, and no doubt to be attributed to various predisposing constitutions, as an unexpected increase of appetite, or an evident degree of intoxication; but any alteration produced, even that of a general tetanus, will have but a few hours duration, terminate by copious perspiration, and leave only a sense of painful weariness.

A few remarks are here adduced judiciously by the author, as relative to the unsusceptibility, or excessive irritability, which certain persons may offer in this, as well as other medicines, which may render its action very slow and tardy, or transform the spasms into durable and alarming affection. Of these, the instances are rare, but in the others, repetition of doses, and perseverance, should not be departed from. By it only, the will

is to be expected to resume its empire on the palsied limbs; by it, they will feel their heat and sensibility increase, their movements become less difficult, less uncertain, less limited. On the part of the physician besides, in this, more than any other application, judgment, attention, and comparative observation, are above all things called for.

II. Dr. Fouquier is duly impressed with the magnitude of the organic causes which may produce paralysis, and baffle thereby every possible attempt to cure. The most terrible of these is, the compression of the brain or of the spinal marrow; the others are from cancerous degeneracy and lesions of the nervous system: in these most lamentable situations, indiscreet applications of any kind of stimulant or exciting remedy would, no doubt, exasperate the case. Hemiplegia itself, the result of a forced effusion from ruptured vessels into the substance of the brain, which has commenced with apoplexy, has been attended with relapses, and has impaired the mental faculties, should not be admitted for the treatment of the *nux vomica*, or of any stimulating agent, unless from the correct analysis of circumstances of age and constitution. A physician might trust to the possible absorption of effused fluid, or of any other compressing cause, as nature itself and time have accomplished in numerous and remarkable instances;* then our remedy could operate with efficacy, and it would not even meet an insuperable resistance when the palsied limbs have long been emaciated, and have shrunk in a state of atrophy; as it is here proved by the case of G. Pigny. All other kinds of palsy, brought on by excess of venery, of liquor, of narcotics, by metallic influence, by passion, by terror, and Rheumatism; by sympathetic irritation, by wounds, and by acute diseases, are unexceptionably proper objects for the *nux vomica*, to which we might probably add the amaurosis, with certain cases of deafness, and the palsy of one limb, of one muscle, and of one feeling.

III. Dr. Fouquier has commenced his experiments with the *nux vomica* in substance. The necessity of

* Rochoux Thesis. *Annal. litt.* 1313, page 187.

increasing his doses to 30, 40, and 50 grains, have afterwards made it necessary to use the alcoholic extract, which is much stronger, and can be long kept unaltered in a dry form. The aqueous extract is deliquescent, but the union of the two is most active, as it unites all the component principles. He has always exhibited the remedy by the mouth. Dr. Asselin, however, has introduced it in the system through the rectum, with great benefit in paraplegia; as for its external application, it has not yet been trusted in nor tried.

Four grains in substance of the nux vomica, or two of the extract, three, four, five, and six times a day, are the most appropriate doses for an adult, and remove, by their gradual operation, the apprehension of any danger, while they give time to the formation of such symptoms as are necessary to regulate its continuation, as far as a general tetanus or painful startings, before which we should stop. To handle this weapon, one should neither be a rash nor timid aggressor of the enemy. Medicines may be administered during treatment, as circumstances will require. A puke, a purge, a moral affection, will increase the energy of the remedy; occasional interruptions will insure sufficient opportunity to judge the operation and its efficacy.

The rest of the memoir of Mr. Fouquier treats of various points not immediately necessary or interesting to our readers, such as the comparatively more decided utility of the nux vomica, than any of the remedies heretofore employed in paralysis, &c.—He refutes also an objection against it on account of a few alledged cases of gastritis produced by it, and which he has satisfactorily explained. We therefore proceed to a few of his narrated cases.

I. The first is that of a man called Burion, a coach-lace maker, 34 years of age, who long before had exhibited a scrophulous constitution, swellings, and supuration in his joints. Of late years, he had been habitually complaining of weakness in his inferior extremities, and which ascended sometimes as high as the hip on one side or the other. At last, they grew weaker, and progressively lost their subserviency to the will. The torpor extended to the intestinal functions, which

seemed to cease, and to the urinary discharges, which became involuntary. On the 12th of October, 1812, he entered the Hospital de la Charité, where; after various applications which produced no good, he was directed to take the nux vomica, to four, eight, and ten grains of the alcoholic extract, each day. On the 4th day after twelve grains, he felt some commotion from the right side to the whole frame, and also from the stomach. It was attended also with spasms in the lower extremities, and in the jaws, leaving a general sense of numbness: eighth of November, the legs had obtained some power of motion. As an additional remedy to counteract the paralysis of the bladder, the tincture of cantharides was administered; and on the 15th of November, he could walk on his crutches, and in six days after, he could do with a stick only. On the 1st of December, Burion walked as firm as ever, having used 314 grains of the alcoholic extract: on the 5th of December, was discharged, perfectly cured.

2. Soisson, who had been a soldier, and also a paper maker, 55 years of age, tall and lean, was first attacked with weariness and numbness of his lower limbs, and successively of his arms, lost at last the power of motion in the first, and partially, but considerably, of the latter. He consequently remained confined in his bed, where no more remarkable alteration succeeded, but emaciation of the palsied limbs. On the beginning of August, he was put to the use of eight grains a day of the nux vomica, when he soon felt thrilling and prickling in the toes, which he could move, and also give some extension to his legs. In eight days, he was able to transport them from side to side; the hands equally progressed, and acquired more feeling. This much benefit he did not receive without experiencing repeated contraction of the jaw, and dizziness in the head. In the middle of September he could stand on his legs and walk around his bed; next month he walked freely, supported by crutches, because his legs were not equally strong. He had now come at the dose of 24 grains a day; it happened, however, that the provision of the *nux vomica* became exhausted, and could not be procured during a month; the mending of this patient was, there-

fore, suspended, and much retarded, until the beginning of the ensuing year, when he was discharged, perfectly cured.

3. William Pygni, 50 years of age, a labourer, of a hardy make and constitution, lost his health in consequence of exposure to a heavy rain, and a long forced march, during cold weather. He was principally subject to weariness of body, faintings, and dimness of sight. In May, 1814, he began to feel the loss of motion and use of his hands, as well as of his legs, and most of the time was obliged to lay down. He rapidly lost flesh, and underwent various medical treatment to no purpose, until, by the beginning of August, he was submitted to the treatment by the *nux vomica*; it was exhibited at very small doses: he had, however, recovered some motion when he came under my care, and soon took 12 grains a day; this produced a painful tetanic affection of the spine and limbs, with heat and confusion in the head; this effect was renewed at each dose, but always vanished in less than one hour. By increasing again the quantity, he was shaken by repeated startings in the muscular system all over; but the power of motion was daily growing stronger. He could now use his hand to cut bread and eat soup. We tried to induce a general spasm and stiffness, which proved stronger in the lower limbs, and was attended during three hours with sweat and dyspnœa; it caused such improvement, that in the beginning of October he could walk without help. (Here the provision of the *nux vomica* failed again, and could not be had for a long time. This delay caused some untoward circumstances in the treatment. Pygni was at last perfectly treated and cured.)

4. Madame Ponsin having by mistake drank some poisonous mixture, which caused a violent puking, and otherwise impaired her health; experienced fever, with œdematous swelling of her feet and ankles; her fingers and toes became benumbed; debility increased; and on the 30th day of her attack, she was absolutely deprived of the use of her limbs; the legs, besides, remained extremely painful at night. She was admitted on the 24th of October, into the hospital, with a febrile pulse, and great thirst. She began with two doses a day.

of two grains each. Warm baths were also added to promote her catamenia which had been suspended. The spasms took place in her arms, similar, said she, "to electrical shocks," and with each of them, motion was renewed. She was nevertheless yet subject to frequent returns of ardent fever and great heats, especially when the dose was raised to eight grains. The treatment was occasionally suspended as fever commanded it, and then assisted by pukes and by Peruvian barks, also by friction of camphorated tincture of cantharides. She was on the 8th of December freely taking ten grains of the extract, and could get up and walk in the room. She was at last prescribed about 12 grains, perfectly cured and discharged the 51st day of her treatment.

5. A man, of about 40 years, entered the hospital for hemiplegy of the left side; it could not be traced to apoplexy. All the side affected, comprizing the eye and face, were continually trembling. This phenomenon, frequently observed in old people, is indeed a first degree of paralysis; in three days of treatment, at the last dose of 14 grains, he became free of disease and trembling, and was discharged well cured.

6. A weaver, aged 49 years, an ancient soldier, had suffered rheumatism during 10 years, principally in the right arm: this had long been deprived of motion. In July, 1816, when he came into the Hôtel Dieu, paralysis was complete; he, nevertheless, had walked a long way to it. He took the nux vomica in substance, which was progressively carried to 50 grains. As it was increased, the motion was restored, and he was perfectly cured. This case more particularly exhibited, as an exception, a disagreeable and ardent heat in the stomach, which made it necessary to interrupt and prolong his treatment. He experienced but feeble startings and partial convulsions in the palsied limbs, or in other parts of the body.

With this abridged narrative out of many more cases offered to the faculty of Paris, by Dr. Fouquier, we stop, adding a few remarks. For the sake of brevity, we have selected those which best prove the mode of treatment, the nature of the disease, and the various ef-

fects of the specific. We think that the estimable medical experimenter has really put us in a good way of serving the cause of humanity, by giving us the most encouraging proofs of the importance of his discovery. He has been labouring under many difficulties, which we cannot help regretting, as they have diminished, in some respect, that striking and commanding evidence which is to be expected to justify the admission of a new remedy in therapeutics. One of these was the scarcity of the nux vomica in Paris, after the period of a long war, which had deprived France of all Asiatic productions. Another, also, is the indescribable aversion of patients to this remedy. They will elude taking the remedy, and even will deceive the attendants, so great is the terror of tetanic spasms which it produces. Is it from prejudice or sensation? We cannot determine. We only can say, that from our late experiments, we can affirm that the reluctance of patients to the nux vomica, when they have tried it, is probably one of the greatest difficulties to encounter in the exhibition of it, and yet, in due proportion, has never proved dangerous. From other sources, and from professional diligent gentlemen, we have already been informed of several encouraging results.

Paralysis is very common in the United States: intemperance, great and gross eating, with the vicissitudes of the climate, are fruitful sources of it; more than that, an ordinary proportion incidental to old age and labour. In common with all other nations, we are also in want of a fixed and effectual remedy for a disease, in which medical science can give more definitions and prophylactics than it could as yet devise effectual cure. Repeating, therefore, the earnest call of the respectable physicians of Paris, upon the faculty in general, we beg our readers to give attention to the subject; their communications to us of the results of experience will be entitled to our thanks, and early notice.

 REVIEW.

RESULTS of an Investigation respecting EPIDEMICAL and PESTILENTIAL DISEASES, including Researches in the Levant concerning the PLAGUE. By CHARLES MACLEAN, M. D. *Lecturer on the Diseases of Hot Climates, to the Honourable the East India Company.* In two volumes. Volume first, 8vo. pp. 500. Lond. 1817.

HERE we meet with an old acquaintance and a formidable antagonist to the doctrine of pestilential contagion. He is the same whom we had noticed twenty years ago,* when we undertook to controvert some of his ingenious speculations on health and disease, preparing his name and authority in addition to the writers who had then enlisted against the importers of *foreign epidemics*.

Since that period of time, we have been placed, it seems, at opposite ends of the world from each other. Here we have toiled in our arduous task; the results of our researches and inquiries on that important subject we have, from time to time, submitted to public inspection and controversy with various success! At least we have maintained our ground; but not without lamenting frequently the continued and systematic belief of contagious epidemics and pestilential fever, which has generally been protected by foreign example and authority, by silence or disregard of our well supported declarations; also by legislative provisions, and restrictions.

Now, then, our readers may judge, how glad we are to see again our old friend, returned from his Asiatic excursions and exposure to pestilential blasts.† Recollecting well what pressing warnings he had given from his previous observations in India, of the real causes of epidemics and pestilences; no sooner did we see a

* Vid. *Medical Repository*, vol. 1. old series, page 531.

† Vid. *Science of Life, a Dissertation on Epidemic and Pestilential Diseases*. By Charles Maclean, of Calcutta.

part of the large collection of facts and observations he had newly treasured up, than we have anticipated, *a new light from the East*, and a timely reinforcement of strong proofs and argument for our long supported and constant opposition. In this expectation we have not been disappointed: nay, we are overjoyed in examining the powerful weapons, with which he aims deadly blows against the tottering fabric of contagion in plague, the most infectious source, indeed, of other notions of contagion in typhus, in consumption, in jail and hospital fevers, and even in dysentery! With him, therefore, we will divide the honour of rescuing the human mind from the trammels of what he calls **A STUPENDOUS ERROR!** if ever we can obtain it. Further more, without computation of dates, in his and our early undertaking of better protecting the lives of large populations, especially of commercial and maritime countries, he shall liberally remain entitled by us to a proportionate share of praise in the cause of a true *reformation* in some of the most dignified provinces of medicine.

Before we can form and give an idea of the extensive investigation which Charles Maclean has pursued, we beg leave to offer some preliminary remarks, as long established opponents ourselves, to any theorist of importation or contagion of epidemics in this or other countries. We have never suffered in our controversial essays, that a proper sense of liberality and professional respect to our antagonists should ever be in the least impaired or departed from, holding as faithfully to the principle of *measure for measure*; much less have we aimed at discrediting their practical usefulness in the same diseases. It is a law of the human mind to progress in the formation of opinions, either from habitual impressions or from self-created inferences: Hence, no three men can conceive alike, any given abstract subject, until another retrospection of ideas and data is newly compared. In medicine, more than in any other professional science, the operations of mind are exercised upon too numerous series of objects, to expect from the best judgment that it could, in all, be candidly pledged to one and the same side of the question. It is here really that a certain degree of pyrrhonism is neces-

sary to enable and prepare man for the dismissal of prejudice or passion, and to the elicitation of truth at last. Of that first kind of pyrrhonism our opponents have frequently given us a good example, which makes us hope that the period when we will all think alike, is not far distant. We therefore must proceed in our science, like the divines of various denominations, with a due and reciprocal sense of esteem and respect. They may differ in doctrine and mode of worship, but they will unite for thanksgiving, for prayer, and *humiliation*!

Not unaware of the many subjects, which in the work of Dr. Maclean would equally call for our praise or our criticism, we must for the present regulate our selection according to our periodical limits, and postpone until the completion of his second volume, our review of the various points of doctrine he has connected with his principal subject. Sufficiently abundant in his first volume are indeed the matters relating to the great controversy and facts, which have been recorded in eighteen volumes of our Medical Repository, comprising twenty years of history, of epidemics, and pestilences in the western world, uniformly referred to the agency of local or atmospheric causes, in support of the proclaimed declarations of the distinguished British and medical cosmopolite.

The preliminary discourse constitutes the first book, or division, of this volume. We may call it an impressive and encyclopedical discourse on all subjects that can bear any relation to the work itself, and to the author. We think it highly interesting. Friends or foes to the new doctrine will be interested and entertained by it. A most important, and, we may say, solemn call is made upon the integrity and philanthropy of the thinking and well informed part of mankind, to consider the circumstances, recent origin, the nature of the doctrine of contagion, its *negative* and unfounded proofs, while it holds mankind in perpetual misery, in errors which are applied to a great number of accidental diseases; which increases terror, alarms, public expenses in the best organized society; multiplies mortality during ordinary prevalence of disease, and places civilized society much below the fatalist, but more prudent Barbarian

and Mahomedan. Finally, the author pledges himself to fix the attention and impartiality of his readers to the refutation of an opinion and belief, which, more than any known error, has concurred to aggravate the lot of man. Three powerful inferences seem to arise from the proposed plan of the author, independently of the matter in the first volume. The one is, that the elucidation of preventive and curative means of the plague, prove that it cannot be attributed to contagion: the other is, that a contagious power among those that are capable of acting on the human body, is found the only one that cannot possibly produce or aggravate a pestilential disease: lastly, that his doctrinal statements will not only be founded on his mode of treatment of the plague as pursued in the Greek hospital of the Seven Towers, at Constantinople, but also, upon repeated experiments on his own person.

These, it must be confessed, are very powerful arguments; and if consistently produced and supported will ultimately put at rest any point of view of the controversy. For our own part, we have not yet, we confess, been aware of this mode of cutting at last the gordian knot, or, rather, of the way by which contagion itself could be proved incompatible with the plague. But from the forcible character of *his refutation of the doctrine of contagion*, composing the second part of this volume, in all the different branches of the previous questions he has embraced, we doubt not of his final elucidation of the nature of plague, as an asthenic disease in which all sources of vitality, either in the nervous or sanguiferous system, being exhausted and not recoverable promptly, death ensues with lymphatic gangrenous swellings, without the phenomena of reaction of fever, or inflammation, which in any case would take place under the excitement of any acrid, virulent, or exciting poison. Should this be the theory of our author, we beg leave to observe, that one of the present editors has long ago pointed out, in several volumes of this work, the deadly and *sedative* operation of certain states of the atmosphere as producing plague and yellow fever, &c. *

* Vid. a series of nine addresses to the public, in the True American and Commercial Advertiser, Philadelphia, by Felix Pascalis, October 18th, 1802.

The second part of this volume is divided into five books.

The first of which treats of *the distinction between diseases, considered in respect to their causes*; for, it is supposed that in their nature there should be no ground of distinction if produced by either contagion or by atmospheric agency; but a nosological definition from their causes is of the utmost consequence, as upon it depend the means of prevention. There are, therefore, but three classes of disease: first, the epidemic and pestilential; second, those which are produced by contagion; and the third class will comprise all those that are not indicated in the above divisions. It follows, that by epidemic we understand all the degrees of morbid or impaired health, depending upon an injurious quality of the atmosphere from the slightest catarrh to the most destructive pestilence.

The vicissitudes of season and climates, combined with heat, moisture, winds, and with other physical predispositions in the body, evidently prove that the character and forms of epidemics must accordingly vary their symptoms. The knowledge, however, of the most malignant kind, virtually includes that of all minor analogous affections, agreeably to the principle, *majus continet in se minus*. Hence, almost all the denominations adapted to plagues and fevers by writers are absurd, and mean nothing but the ignorance of the age in which they were created; so are the *Siam fever*, the *Bulam fever*, the *Grenada fever*, and the *Hill fever*, of India. We might as well say the *John fever*, the *Tom fever*, the *sea fever*, the *land fever*, the *desert fever*, *cum multis aliis*; alluding also to another complaint, the offspring of atmospheric vicissitudes, that is, pulmonary consumption, the author observes, that it is considered in England as a national malady, and that a most popular opinion there, as well as among the christians in the Levant, who think it contagious, is, that common colds are the foundation of almost all the ailments of mankind, and thus had thought the great father of physic who had considered the air as the cause of every disease.

Were we to contrast the character of epidemics with those of contagious diseases, the difference will be strik-

ingly evident. The diffusibility of the air, and the various degrees of the acting atmospheric power on various constitutions, either hastens or lengthens its morbid effects, and incessantly marks them with unusual or different characters from those which had been observed and described. But these are not certainly capable of being reproduced by *contact*, which certainly should be the indispensable criterion of a contagious disease; if, however, it should happen that by accidental circumstances unconnected with the general state of the atmosphere, a human body should be immersed in a noxious jail, hospital, or marsh effluvium, it is the same as if he was plunged in a well, or in any subterraneous collection of mephitic gas; this should not be the means of delusion; the case is clear, and contagion has nothing to do with the reproduction of the disease.

The words of contagious or infectious atmosphere are also fraught with nonsense and absurdity; nor is it consistent with reason to suppose that a disease which had commenced with animal or vegetable putrefaction, has become contagious, which would be the same as to say, that contagious diseases may be created from epidemics by the adventitious combination of certain aerial principles. The infinitely destructive results of such an hypothesis, which must long ago have destroyed the human race, dispenses us from further investigation. Besides, there are certain and unchangeable laws in contagious diseases; as experience proves, they are general or local.

The first, as the small pox and measles, &c. never affect a part of the system without affecting the whole constitution, with certain changes that render it unsusceptible of the same. The latter, as the lues venerea, the itch, &c. can affect a part without producing any derangement of animal functions, except by aggravated progress, and may be repeatedly received. Other invariable characters in symptoms, in stages, and duration, have established, all over the world, uniform modes of prevention, of cure, and effectually checked their progress, arrested their malignity, or modified their operation. The difficulty of defining the primordial cause of a contagious complaint, is not an argument against its peculiar and uniform operation. Nor was the celebrated

Mead very correct, when he defined the small pox "a kind of plague." We might as well answer, "that the plague is a *kind of small pox*." Their dissimilarity itself gives a strong presumption that they have different laws of reproduction. Supposing it was true, as many to this day believe, that both diseases, the plague and small pox, have originated from the same country, that is, Egypt, it would not justify the similarity, nor the comparison; because it is proved that the inoculation of the small pox has been practised in China, and in Asia, from time immemorial.

II. Origin of the doctrine of contagion.

Under this head, Dr. Maclean undertakes to prove that the doctrine of contagion, of epidemic, or pestilential diseases, was unknown to Hippocrates, and to the ancient physicians; that it never was entertained by any Pagan, Mahomedan, or Hindû nation, not even by the Christians until about the middle of the sixteenth century, when Pope Paul III. wishing to influence the Council of Trent, and to remove that body from the imperial dominions into his own city of Bologna, employed the authority of the physician of the Council, Hieronimus Fracastorius, to publish a book of tales, with the view of frightening the fathers, on the score of an ordinary complaint then prevailing in Trent, which by him was represented as fatal as the plague, especially to persons of noble blood. No doubt, this was a barefaced act of intrigue and ambition, which nevertheless was carried through in spite of the opposition of the Emperor's delegate, and of the Spanish bishops.

We will seldom find in history a more flagitious perversion of truth under the dictates of ambition and sycophancy, and its recollection is happily adapted to the present subject. But this fact was not sufficient to prove that at that time the most enlightened ranks of society were unaware of a true or supposed attribute of contagion to plague or other epidemics; and even if so, there would be very little authority to be derived in favour of any medical or philosophical doctrine, from the predominating opinion of an age so much tainted with the ignorance, fanaticism, and barbarism of the preceding centuries. Long before the Roman Pontiff thus gave

so high an importance to the doctrine of contagion, we find that, in the year 1225, Louis the Eighth, King of France, bequeathed eighty-four livres to each of the hospitals of the leprous in his dominions, of which no less than 2000 were said to have existed at that time, besides a much greater and almost incredible number was registered in Christendom; they were called *Ladreries*, and the many ruins of them we have visited throughout the south of France.

Whether the leprosis, as a contagious disease, had been imported by the Saracens, in their numerous attempts of invasion on the coasts of France, Spain, and Italy; whether it had propagated and continued in Europe as an endemic, and whether the *Ladreries* which were under the special patronage and invocation of St. Lazarus, were used also for the confinement of pestilential cases, we have not documents enough to determine; but the provision of so many hospitals for the leprous, certainly proves that their disease was thought contagious, and that it required a seclusion. Hence the name of *Lazaretto* was afterwards given to the national establishment for quarantine of goods and men. We may draw the same conclusion from other more recent establishments, chapels, infirmaries, &c. for the plague, in all the large cities of the south of Europe, which existed under the invocation of St. Roch. This great Saint, we must remark, was a Frenchman from Montpellier, who wandered about the southern countries as a pilgrim, and who miraculously cured the plague every where. He died in 1327, remained, and was commemorated as the guardian and protector of the faithful, against the Levantine plague. The popular and anciently established terror of foreign pestilence, supposes, therefore, the belief of its importation and contagion, during many ages before the convocation of the Council of Trent. The same might, perhaps, be traced as far back as the great and universal pestilence of Europe, under the reign of Justinian the first, and in the beginning of the sixth century.

We nevertheless believe, that the decision of this great Œcumenic Council, on the decrees of which all christian nations had much dependence, the papal domineering

influence, and the celebrity of Fracastorius, together with the general ignorance and disuse of the Greek language and of Hippocrates' writings, rendered the doctrine of contagion more familiar and credible, as an attribute to the ordinary complaint at Trent, which Fracastorius called a *plague*, affectedly declaring that he was neither willing nor obliged to attend such a disease; no doubt, because it was universally judged to be highly contagious. He even pretended that the existing epidemic was particularly more dangerous to persons of noble blood, an opinion which was already entertained in England, in relation to the memorable epidemic of the *Sudor Anglicanus*. He thereby flattered as much as he terrified the principal reverend members of the Council, whose pride could not be averse to the notion of special danger, arising from their mode of living, habits, and natural powers of *noble races*. Let flattery be received, and its object is accomplished. It is here that the author powerfully contrasts the inconsistent doctrine of contagion, with its necessary results of a diverging power, multiplied by its virulence, and by incessantly new created points of fomes, which must take not a long period of time to destroy a whole community or nation. The plague, however, in its more congenial soil, and among nations of fatalists and unbelievers of contagion prevails and ceases, goes and comes, sometimes is at hand, at others it is very distant. It hovers only about cities, armies, and hospitals, and with all its destructive power keeps entire one of the most formidable nations of invaders, in the inheritance and empires of the Romans, of the Greeks, of the Jews, and of the Christians!

III. *Laws of epidemic diseases.*

As soon as the contagionists thought to assume as a proof of their doctrine, the unsusceptibility of the plague in any person who had once received it, in conformity to the laws of the small pox, measles, &c. and since a few of their partizans have pretended to experiment and adduce the inoculation of the plague as a preventive, nothing more direct could be answered than an absolute refutation of their assertion in either point of view, and this task we affirm has been triumphantly discharged with an abundant collection of facts, showing that plague

can be received many times in the same individual. Some recent writers, especially Dr. Pym and Sir James Fellowes, who had embarked in the same project, are amply refuted. We must here be allowed to express some surprise, that a later writer of our own country, should have also given assent to that doctrine in relation to the yellow fever, on the authority of Dr. Rush, who had noticed the non-susceptibility of the disease in French West India refugees. This had nothing to do, as it will presently be shown, with the present question, while the same author had so well established the fact and number of recurrences of the yellow fever in the same subject.* In this matter, which cannot be too much evidenced, we may add, that in the year 1798, on the 24th of August, Dr. Pascalis commenced the treatment of Mrs. Valence, for the yellow fever, the wife of an eminent engraver, of Philadelphia, and there still living, of which, by the 2nd of September, she was perfectly recovered; that on the 29th of that month she experienced the same, and died with it on the 4th of October. During the same prevalence, he witnessed three distinct attacks in the person of a journeyman baker, called Wilson, and who succumbed to the last.

A few instances of repeated attacks of the disease, in the same subject, must set the question and all doubts on the subject at rest, as the protracted convalescence of one only, may sometimes last long, and as the short duration of the epidemic, which in this country has never been protracted beyond two months, could not afford many cases of the kind; while, by the same reasons, it evinces that the non-recurrence of plague or yellow fever, could not be a correct proof of the non-susceptibility of the subject. By noticing the last attributes remarked in natives, creoles, and inhabitants of tropical countries, the contagionists must not infer that they bring in view the operative effect of the yellow fever, unless they consistently premise that they once suffered it, or else we will assert it to be a matter only of constitutional predisposition or idiosyncrasy; it is on this physioloigcal ground that Dr. Maclean takes

* *Vid. Medical Inquiries and Observations, Vol. 1.*

the question, and we prefer it, also, as it illustrates a great principle in physiology heretofore little adverted to, and which we beg leave to explain in our own way. The result of observation on epidemic and pestilential diseases conceded by all parties, and with respect to their causes, may be reduced to the following :

First.—That the plague operates more severely and universally upon strangers and the labouring class of people, (the water carriers excepted,) than upon those who are confined in the airy and elevated part of their houses ; in the cities more than throughout the country, and that it is unmercifully cruel upon the christians.

Second.—That the yellow fever in the United States is never an epidemic of the country, but of the cities ; that it is ten to one more easily received by the northern and European people, by hardy than weakly people, as women and children ; and that it always spares the inhabitants of the West Indies and tropical countries.

Third.—That in West India islands, the European and the North American or British seamen and soldiers run the greatest danger ; that it never rages there but in sea ports, and never throughout plantations. These are also facts well ascertained. All that we wish now to infer is, that certain constitutions are liable to pestilential fevers, and others are not. With this theorem, we may proceed to another.

Are the various descriptions of people we have thus described as protected against the plague or the yellow fever ; are they rendered unsusceptible by the disease itself, which they have previously received, or by some cause unknown to us ? If the first, it must be proved ; if the latter, certainly the non-susceptibility is not an argument in favour of contagion, and should not be applied to plague nor yellow fever.

On the subject of laws of epidemics incompatible with contagion, our author notices many more in as many succeeding chapters ; and in a masterly manner proves every one of them. That epidemics commence and cease at periods corresponding with certain changes of the seasons, and accordingly differing in different countries ; that their phenomena are various and dissi-

milar, their effects and duration equally indefinite as their ambient causes; that they prevail in countries least cultivated, and affect persons in a great degree more exposed by circumstances of life and predisposition; that epidemic diseases are relieved in virulence and violence by removal of the sick from noxious into pure air, &c. &c. These, and other chapters are enriched with novel and instructive facts, illustrated by practical remarks, and enforced by an universal practical experience and analysis which will convince at least the candid and the impartial reader, and compel the dubious or the prejudiced into his usual re-intrenchment of silence or scepticism.

IV. *State of Opinion in the 18th Century.*

In this important division of the work before us, the author has assembled and described all the events which have contributed to the diffusion of the doctrine of contagion. The great pestilence of London and Marseilles; the establishment among the maritime nations of Europe of legal seclusion of men and goods, and writings of great or lesser note, which have opposed or supported the system of quarantine. He has not only been an accurate historian, but he has been instructive, so much so, as to exhibit in the greatest points of light and conviction the following arguments:

First.—The inconsistency of supposing pestilential diseases to be contagious and endemical, as the plague in the Levant, the yellow fever in America, the typhus in England; while the really *contagious* small-pox, measles, syphilis, &c. have not certainly any known fixed quarters in any part of the world.

Second.—If the history of many ages, and of many nations, can furnish only a few facts to prove that pestilential diseases have been communicated by contagion from one person to another, from this to goods, or from goods again to persons; upon sound reasoning we must then reject the doctrine of contagion, as such a palpable and powerful cause should abound in proofs sufficient to bring conviction in the most obdurate unbeliever. He who would call in question the contagious nature of the small pox, would only invite doubts as to the sanity of his intellect.

Third.—The weight and authority of those who at an early period have treated this doctrine as a superstitious belief, or a fashionable alarm, and who have transmitted memorable facts, and proved the impossibility of the propagation of pestilence by contact or contagion, unless it had destroyed all communities.

Fourth.—To inquire into the merits, the errors, the motives, and the mistakes of all and of each of the renowned supporters of the contagion of the modern times, especially Mr. Pym, Dr. Bancroft, Chisholm, Sir James Fellowes, and others, and to refute the respective bearings of their arguments, to define their experience, to examine their claim to authority, while they remained in a state of delusion, and have succeeded in nothing but a dexterous application of false opinions to facts so erroneously judged, &c.

V. *Pernicious Consequences of the Doctrine of Contagion.*

Dr. Maclean contemplates “in all their bearings, the various and complicated consequences of this fundamental error, whether as they relate to humanity, to the progress of medical improvement, to the moral state of communities, to political economy, to the interest of commerce and navigation, to the success of expeditions and safety of armaments, to individual intercourse of nations, or to the general consumer and the public revenue.” In each point of view it would be hardly believed that the best interests of mankind could have been so long sacrificed to popular prejudices and inherited delusions!

Far from serving the cause of humanity, it is an inevitable consequence of the doctrine of contagion, that the abandonment of sick friends, parent, wife, and children, affords the only chance for the personal safety of those who are not yet affected. Hence the history of pestilences and quarantines not only afford the fact of immense and wanton destruction of property, but the legal assassination, by shooting, of fellow creatures who had survived a great mortality. Immense populations have been left without protection of law or of assistance whatever; outlawed as it were, forbidden to have an intercourse with the general community, and thereby

exposed to interception of supplies of provision and to all the horrors of famine.

For these and many more distressing calamities, not to be noticed among the Turks, we earnestly refer our readers to the well proved and detailed account in the original, and especially to his reasonable calculations of the enormous increase of mortality which must result from the belief of a virulent contagion, and of all the precautionary measures resulting from it.

Our limits in this periodical work make us regret that we cannot say enough on the numerous subjects to which the author adverts, better to impress on good minds the fallacy of the doctrine which, among other evils, has entailed upon all commercial nations an universal and no less absurd and calamitous system of quarantine. The British law is here analysed, and its delusion, like all others of the kind shown, while it could not in the least protect the British establishments in the Mediterranean no more than it can correct or check the blowing of a pestiferous wind. We must, however, be permitted to remark, that on this subject no justice has yet been done by Dr. Maclean to his predecessors against this cankerous evil, the writings of which, we apprehend, never reached him during his long and distant voyages. The principal mischiefs and inconsistencies of quarantine have been exposed in p. 376. vol. 9. of our *Medical Repository*,* and in a pressingly argumentative speech to congress by Sam. L. Mitchill, published in the same vol. page 447. The history of quarantine establishments, with a view of their absurdity is offered in page 394. vol. 10. by Dr. Caldwell, and a review by Samuel L. Mitchill again, of the British quarantine statute in volume 13, page 49. : These and other sources of direct and explicit argument we feel happy to find have been at least surmised, and that therefore they shall remain more authoritative. Indeed, it is with a just remark from one of the above papers (page 400. vol. 10.) that we will for the present close this subject. "Such is the perverted state of quarantine establishments, that it calls for the reforming hand of a medical Luther

* Dr. Pascalis on Quarantine and Yellow Fever in Spain.

or a Calvin, no less than the abuses of the church did during the pontificate of Leo X." We hope that, with his succeeding volume, our author may be the successful reformer in his country, the power and greatness of which command, so much influence all over the world.

MEMOIRE ET OBSERVATIONS *concernant les bons effets du CAUTERE ACTUEL, appliqué sur la Tête, ou sur la Nuque ; dans plusieurs Maladies des Yeux, des enveloppes du Crane, du Cerveau et du Systeme Nerveux.*

OBSERVATIONS *on the Curative Effects of the ACTUAL CAUTERY, applied on the Head and nape of the Neck, in several Diseases of the Eyes, of the Membranes of the Cranium, of the Brain, and of the Nervous System.* By LOUIS VALENTIN, M. D. *Ancient Professor and Member of Learned European and American Institutions, &c. Knight of the Order of the King, and of the Legion of Honour.* One vol. in 8vo. pp. 170. Nancy, 1815.

THERE is no therapeutical subject in medicine which has been more exalted by ancient and modern authority ; none that has been more recommended among civilized, populous, and even among savage nations ; none that has been approved by a greater number of celebrated physicians, has been supported by more remarkable instances of success, and has embraced a greater range of local or constitutional diseases, than the application of concentrated heat on the human body, from the rays of the sun, or by means of heated sand, water, of various combustible substances, and of metals. After all, there is none that has been more neglected, and is less practised among the generality of nations, districts and places, where medical science is respected and properly cultivated. Every where we discover a degree of indifference to it. Very few learned physicians seem to inquire into the various modes of pyrotechnic practice, or of the hopeless cases which it could probably cure. With the same prejudice we have been ourselves led to consider

whether, by noticing the above book, we should not be taxed with filling our pages rather with singular or unusual matter, than with what is unexceptionably instructive and useful.

It will be much to our purpose to trace some of the causes of that general neglect of the present remedy, and of the reasons which progressively operated its rejection, a very few instances excepted.

The first is no doubt the nature of a process, so naturally painful as to dismay the courage of the patient, and the fortitude itself of the physician. It may be answered, that it does not exhibit, however, a like horrid scene as that of many of our surgical operations ;—granted ; yet, these are resorted to as the last reitrenchment against death ; while the burning and smoaking of human flesh might be dispensed with for various less terrific applications, which are never wanting the authority and support of as many physicians as there are, who did not acquaint themselves with the nature and effects of this application.

The second reason is, the want of some approved and methodised treatise, defining the diseases which would exclusively require the actual cautery, the diagnosis or pathological state of others which might require its application, with comparative statements of the best mode of adustion of materials with which it should be effected ; instead of which, the new books on the subject are principally the production of learned partizans, who have assembled old and modern testimonies in favour of the remedy, have seen and performed many cures, multiplied and confused the objects to be operated upon, and who mostly differ from each other in the mode of application of the materials, extent, and treatment of the cautery. As it is in the nature and lot of men to vary in opinion, readers or novices who seek for instruction soon find themselves trammelled in as many points of controversy and perplexity as there are authorities for any one of the circumstances above described, on which responsibility of practice naturally forbids them to become umpires. Evasion, hesitation, neglect, and rejection of the mode, will, therefore, be the ultimate consequence.

A third reason is, that among the successful cases of pyrotechnic practice of the ancients and moderns, there are undoubtedly many which might have been readily treated and cured by different and easier therapeutic means, because new internal remedies have been discovered, or have been better regulated, and thereby extended to many more complaints. We could point out a variety of such instances, which did no more require the application of fire than the

man mentioned by Forestus, who, in a case of obstinate epistaxis, which no topical remedy could subdue, suffered the application of a red hot iron to the soles of his feet. Now, we may testify, that in many similar hæmorrhages of eight or ten days duration, we never failed to stop them by simple derivative remedies, strong and repeated drastics.

These impressive and other plausible motives must have damped the spirit of investigation of this interesting subject, rendered it dubious, exceptionable, uselessly cruel, and at least very questionable to the eyes of correct practitioners. A majority of them have, therefore, abstained from, or remained indifferent about it. It has been left to only a few bold independent practitioners, who care not to deviate from the beaten track of ordinary means, if they can more effectually exercise the healing power of their art. Some of them were men of genius and of persevering observation. They have frequently admonished their medical brethren on their unpardonable neglect of a valuable remedy; but as they have not removed the difficulties we have enumerated, the pyrotechnic practice has remained, and will, 'ere long, probably be used only in a few cases of *poisoned wounds*, of *carious bones*, and of *hæmorrhagic surfaces*. These calls on the attention of the medical profession in general, have many years back come from the French medical writers, among whom, we principally notice Poteau, of Lyons; Baron de Percy, of Paris; Aulagnier, of Marseilles; and the author of the work before us, Louis Valentin, of Nancy. This last gentleman, very well known to us by his long residence in several States, and by various instructive writings on important subjects, had long ago given, in our Medical Repository, a statement of his doctrine and experience on the efficacy of the actual cautery. (Vid. Med. Rep. vol. 4. p. 364). He thus came seventeen years ago before the public, already prepared by his experience, supported by facts in France as well as in America, where he had freely resorted to this mode of practice. The present work is a more ample development of it, preceded by an historical narrative of the use of fire in various complaints, from the days of Hippocrates to the present time, and among all nations. It is not a small gratification to find herein, that our aborigines, among their medical notions and remedies, had in use that of a dry moulding piece of wood, which being kindled, they applied on the surface of limbs or parts, in case of obstinate pains; they left the ashes upon it, better to consume the outer skin, and did not fail curing the sufferer. This fact had been commu-

nicated by Professor Rush to the philosophical society of Philadelphia, in 1774. (vid. Med. Inq. and Obs. vol. 1.)

The book is divided into twenty-four observations, and many other detached articles to several of them, probably as they had been collected in a memorandum book; a considerable number of notes form a general appendix.

It appears, we must confess, that Dr. Valentin has been more concerned about the importance of his subject, than for the methodical arrangement of his doctrine and practice; yet nobody ever had better materials to do away the several objections which we have enumerated, as motives or difficulties in the way of establishing the pyrotechnic practice.

His practical mode, and such as a long experience has induced him exclusively to prefer, is less cruel; it is simple and powerful; it consists of a properly sized piece of a red-hot steel, and sometimes to white heat, to be applied on the sinciput or *bregma*; or on the occiput, transcurrently down to the nape of the neck. The first place only admits of some pressure, when it is intended to form a deep scar, and affect the cranium itself, even to cause exfoliation. The other is more extensive, and procures a more superficial sloughing and suppuration.

It has been remarked, that the greater the heat is, in the first instance, the less is the pain; and in the other, it is still more instantaneous. After the operation, the part is dressed with warm oil, and on the succeeding day, it is divided by the scalpel, to accelerate the suppuration, and the good effects expected from it. This other process cannot, of course, cause much pain. That this mode is superior to the *mora*, powerful, free from the minute details and tediousness of burning cotton or any other combustible, and that it is, at most, no more painful and cruel than that of exciting a large vesication by cantharides on sensible parts of the body, it will be easily granted, and with pleasure we can testify having heard such declaration from the mouth of the patients themselves.

Our author has submitted a numerous range of diseases to the pyrotechnic practice, from their connexion in diagnosis with a great and general cause seated in the *head*, or in the *nervous system*. He has thereby shown a safe datum to go by, and has removed the danger or reproach of empiricism. Thus he has been successful in treating cases of blindness, deafness, pain in the face, maniacal delirium, slow fever, catalepsy, phrensy, typhus mitior attended with unmanageable derangement, hydrocephalic fever, mania with hæmoptysis, &c. ancient; epilepsy, cephalalgia, rheumatism, &c.

There were circumstances in each of these cases which had baffled ordinary remedies, and our author has not been unmindful also to mark, in each of the above complaints, the distinct characters and symptoms, under which his remedy would have proved useless or aggravating.

It is a matter of regret for us that this excellent collection of documents is not offered in the vernacular language, better to enable every description of our readers to compare the facts adduced, with what they may have a thousand times the opportunity of experiencing in practice, when morbid causes, deeply seated in the nervous and aponeurotic system, require means, in the language of the author, calculated "to awake and reanimate the benumbed sensitive principle, to break spasmodic irradiations, and change or alter nervous irritations, hurtful to the system, by another more active and temporary power, and by determining a more copious flow of humours from the tela cellulosa;" thereupon, Hippocrates had said, *Quod remedium non sanat, ferrum sanat, quod ferrum non sanat, ignis sanat, quod ignis non sanat, insana-bile dici oportet.*

A DISSERTATION ON PERMANENT STRICTURES OF THE URETHRA,
by JAMES C. BLISS.

THIS is a dissertation on a most distressing disease, written by James C. Bliss, as an academic exercise, for the doctor's degree in the College of Physicians and Surgeons, at New-York, and defended by him, before the trustees, on the 1st of May, 1815. The author was previously a licentiate in physic, under the statute of the commonwealth, and had acted for a twelve-month, as a house surgeon to the New-York Hospital, a situation abounding in opportunities for instruction, and particularly in that malady on which he has delivered the reports of his observation and experience.

He mentions the bougie, as known to Ferrus, in 1535, though not generally received until it had been recommended by *Daran*. Even as late as 1750, the bougie usually employed in the first hospitals of London, was either a piece of lead, or a small waxen candle. He notices, in his introduction, the labours of Mr. John Hunter, Mr. Home, Mr. Charles Bell, Mr. Ramsden, Mr. Wiseman, and several others, to lessen the sufferings of men, who are tormented with stricture.

The merits of the bougie, the cutting instrument, and the caustic, are specially noticed, and due respect paid to those

who recommended them. Dr. Bliss considers the urethra anatomically, and its smallest diameter to be $\frac{7}{20}$ of an inch, and its greatest $\frac{11}{20}$. It varies somewhat in different individuals. The places most liable to stricture are two: the one at $4\frac{1}{2}$ inches from the external orifice, and the other $7\frac{1}{2}$ from the same point.

Proceeding to the pathology, it is stated, that inflammatory action, inducing a thickening of the internal membrane of the passage, is the real cause of the simplest form of stricture. A consequence of this phlogistic action, is an effusion of lymph, exterior to the membrane, the formation of adhesions, a conglutination of the cells of the penis, and the formation of a ridge projecting into the urethra, and assuming, in some cases, an almost cartilaginous hardness.

When permanent stricture is thus formed, inflammation generally continues, and spasm is the frequent concomitant.

Among the causes of stricture, are enumerated gonorrhœa virulenta and strong injections, injury done by the passage of calculi, frequent and long continued action of the muscles surrounding the urethra, intemperate use of intoxicating liquors, mechanical violence done to the parts, abscesses of the penis, and deep and foul chancres. He next treats on the symptoms, from their insidious beginning, through the series of local mischief and torment, to the constitutional vexation, of pain in the back and loins, paroxysms of fever, anorexia, nausea, vomiting, suppression sometimes, and then again incontinence of urine, and, besides, the whole train of incidents denominated nervous. These, with the consequent thickening of the bladder, enlargement of the urethra, and accumulations in the kidneys and the brain, are delineated with the correctness and ability of a faithful observer.

On the treatment and cure of stricture, Dr. B. discusses the merits of bougies like an experimental man. He recommends those of elastic gum for strictures anterior to the bulb of the urethra, and those of common plaster for those beyond that point: after prescribing ample rules and cautions for the use of these instruments, he proceeds to the consideration of caustic. Where bougies cannot be employed, he considers the employment of caustic warranted by the exigency of the case. After describing the usual method of applying the caustic, by means of an armed bougie, he mentions with approbation the method of cauterising the urethra practised by Dr. R. S. Kissam, one of the surgeons of the New-York hospital. It consists in dipping the extremity of a small sized bougie of gum elastic into a saturated solution of

caustic ; then laying it aside until the caustic concretes, and afterwards introducing it through a conula to the place of obstruction. The point of the bougie may be also armed by dipping it in a solution of lunar caustic, corrosive sublimate, or a liquid mixture of sal ammoniac and corrosive sublimate or quicksilver ; of which latter he seems to entertain a very favourable opinion.

He doubts the remedial effects of the caustic potash, though highly recommended by Mr. Whately ; yet he does so, rather on the authority of European practisers than from his own observation, or from the experience of American surgeons.

In an appendix, are contained about a dozen cases, as treated by the bougie and caustic. These are added for the purpose of illustrating both the general disease and the author's particular views of it.

The essay is replete with good sense, candour, and matters of fact. Dr. B. has enjoyed opportunities highly favourable to the investigation of the disease upon which he has written ; and he has improved those opportunities so advantageously, that his dissertation may be considered as a valuable body of doctrine and excellent manual of practice in that formidable malady.

Medical & Surgical Correspondence.

Monography of a Singular Case of NÆVUS MATERNUS explained. By DR. ABRAHAM CORNELISON.

Clarkstown, Rockland County, N Y. August 20, 1816.

DEAR SIR,

WE frequently hear of the disagreeable effects on the Fœtus in Utero, produced by the longings, aversions, and terrific impressions made on the minds of parturient women. Some infants are born with marks or blemishes, said to resemble such substances or liquids as their mothers had a desire for, but were not procured for them; others with natural attachments or aversions to certain objects, which were peculiar to their mothers before their births, with, also, a relish or dislike for certain aliments depending on the same cause: But what appears most extraordinary, that impressions which have operated forcibly on the minds of females of extreme sensibility, have by reports and certain publications been as terrific in effect on the fœtus as the object which produced it. That the description of the operation of circumcision should produce by its effects a sphacelus of the prepuce; or that a favourite cow being killed by the husband contrary to the wishes and expectations of the wife, her seeing her unexpectedly dead with her fore legs disjointed, should have an effect of amputating the arms of the child she was like for, at a time too when she was far advanced in pregnancy, cannot possibly be confided in by the reflecting or judicious. Indeed, if impressions were so injurious to the fœtus as have been represented by many, it would be necessary for every woman of sensibility to be gratified in all her wants and wishes, to avoid all books and company for fear of being informed of some disagreeable circumstance, which might be injurious to her expected offspring. I am convinced that opinions favouring such miraculous effects, from the operations of the mind, have been more confided in formerly by females, and perhaps sanctioned by medical men, than at the present period. Many distressing events have occurred in neighbourhoods, cities, and kingdoms, which must have excited horror, sympathy, &c. with all classes of people of sensibility, still children were born with no marks of the extraordinary event.

Decapitation was very frequent in France, when the King of that nation suffered. Many of his friends and connections (royalists) must have felt as much horror, sympathy, and detestation of the act, as the woman did for her cow, still we heard of no children being born without heads: I trust we have arrived at a period of reasoning and judging more correctly. I presume no rational being will confide in the possibility of any operation being performed on the fœtus by any impression made on the mind of the mother. Deformities become more frequent in proportion to the population of the country. We see them frequently in the human species, in brutes, and in vegetables, which are not in our power at all times to account for, perhaps not consistently at any time. A child was born in this neighbourhood about three weeks ago with evident marks of ligatures having been applied to both legs. The first two appearances of them are an inch above the ancles, the other two somewhat higher. The lowest on the left leg appears the most complete, surrounding the leg, and making a deep impression. The bone appears at this place to be smaller than above or below it. The skin in this depression was excoriated, at the time of birth, and continued in an ulcerated state fourteen days afterwards when I first saw it, although particularly attended to by the mother. The left foot is considerably deformed; there is flesh on the upper part of it, having somewhat of an œdematous appearance, the toes are short, and some of them destitute of bone; the other impressions of ligatures appear to have been partial, as if the legs were confined to a smooth surface with a ligature passing from the sides of it, making impressions on half of the leg. This woman had heard no sad tales of persons being confined by irons or ligatures, nor had any disagreeable impressions been made on her from seeing any person in that situation; consequently, it could not have originated from any effect of the mind, which, by sympathy, might have produced this deformity. May not these impressions have been produced by some preternatural ligamentous bands, shooting out from the membranes surrounding the legs, but not so tight as to prevent the circulation of blood being carried on and ruptured during labour, by the contraction of the uterus? The membranes cannot be presumed, in every instance, to be in a healthy regular form, but may at times be in a morbid state. Perhaps similar bands may have surrounded the arms of the fœtus (which were supposed to have been amputated by the effects of surprise or some other passion excited by seeing the cow's legs,) before any ossific

deposition took place, which produced sphacelus by severe compression. I trust an opinion of this kind would be more rational than to account for it from any effect of the mind.

Believe me, to be your

Friend and humble servant,

ABRAHAM CORNELISON.

TO DR. FELIX PASCALIS.

REMARKS.

In a subject, as yet very little understood, and so often misrepresented by popular prejudices, we have been particular in explaining the principles and facts which, as we apprehend, must establish a rational doctrine. (vid. vol. 2, page 1.) We therefore feel happy at the coincidence and support that the same can derive from the observations of our correspondent. His mode of accounting for the impression of ligatures in the above child, is certainly happy and ingenious. But this is not the only one: we could point out two more. Our readers may remember an authentic case, in our first volume (N. S. page 383,) of a large foetus, grown without uterine membranes and wrapped up in an enormous placenta, the arms and legs of which appeared as if they had been crushed and deformed by violent pressure. We therefore may suppose, that by an accidental opening of the membranes, these legs and deformed feet had plunged in the placenta, which could by adhesion still oppose the effusion of the waters. Again; if one or more knots can be formed on a long funis, is it not probable that both ancles have been at once caught, and remained powerfully tied by it, and were at birth loosened by the uterine contractions?

REMARKS on a Case of *Hydrocephalus Internus*, in which fifty-six ounces of water were found within the ventricles of the brain, on dissection after death. By W. M. IRELAND, Member of the Royal College of Surgeons in London, &c. &c.

THE subject of this case was about five years of age, and belonged to a Mr L. who, from his liberal ideas respecting the medical profession, permitted me, in company with Dr. J. W. Francis, Dr. W. Williamson, and Dr. D. L. Rogers, to examine the body after death.

The cranium measured two feet three inches in circumference, and two feet four inches, from the point of the chin to the lower part of the occiput, a size surpassing any thing to be met with among children of the same age.

The whole of the sutures were completely closed, and the bones of the head were extremely soft and thin, but the texture so compact as to prevent seeing the tables and intermediate cancelli or diploe.

The coverings of the brain were preternaturally white and diaphanous, with little or no erubescence, or even the appearance of blood-vessels; although the different sinuses and large arteries were completely gorged with blood. On taking off the dura-mater, and pia-mater, a limpid transparent fluid gushed out through the convolutions of the cerebrum; which appeared as clear and pure as pump water.

On cutting through the corpus callosum, close down to the septum lucidum; so as to lay the ventricles completely open, they were found to measure upwards of seven inches long, and more than three inches wide in the centre; with a communication through which I could pass my hand, from one to the other.

The substance of the brain was of a soft flabby texture, and its colour of an unnatural whiteness. The nerves were found to be of a loose relaxed appearance, and much smaller than in their natural and healthy state.

The cerebellum had the appearance of a soft pulpy mass, and its size much smaller than in a natural state. There did not appear to be any protuberances or sharp points about the processes of the bones, as have been described by some writers; on the contrary, the inside of the cranium was particularly smooth and regular.

On measuring the water which had been taken from within the ventricles, it was found to be fifty-six ounces; a quantity seldom or ever known to be contained within the substance of the brain, previous to the examination of this extraordinary case.

The child was in every other respects of a perfect form and size, and at birth, appeared to be in perfect health; in which state it continued for several weeks, when it began to show symptoms of uneasiness about its head, with a constant desire of rolling it about, and a wish to slide it over the arm of its nurse, so as to make it the most depending part of the body.

Soon after this period, strabismus of both eyes took place, with now and then, a wild rolling of the eye-balls accompanied with a vacant and incoherent stare. There did not,

it is said, appear to be any dilatation of the pupils; nor was there, at any time, a diminution of appetite, or a want of sleep.

His evacuations were at all times natural and regular, both by stool and urine. His pulse was never found in a state to indicate indisposition, nor did he ever appear to be in pain.

His sense of hearing was altogether lost; nor were his faculties of speech ever brought into action.

About the age of six months, the unnatural size of its head began to make its appearance, which continued to increase till his dissolution.

From the period the cranium was first observed to enlarge, the stools and urine were passed involuntarily; the wild rollings and unnatural stare of the eyes began gradually to disappear, and strabismus less sensible. He took, at all times, notice of glaring colours, and was sensibly affected with strong light. He seemed at all times to be partial to new objects, and was amused when noticed by strangers. His sense of feeling was always very obtuse and imperfect; nor were the organs of hearing ever acted upon, although there appeared to be no defect in the external formation of those parts. The eustachian tubes were perfect, and the ear-wax secreted in a proper consistence and quantity, which could be seen at the bottom of the meatus auditorius. I was informed that, "the pupils were never seen to be dilated;" but this I should rather doubt, as it was not the case on my visiting him a few hours previous to his death.

Every part of his body, as I have said before, save his enormous cranium, was in the most perfect state, both as to size and form. His appetite was always good, and his sleep natural. Neither of the families of his parents, or any of his brothers and sisters, were subject to the same disease.

This is a short history of the case, as far as I could learn from all those who had seen the child at different stages of the complaint; which seems to prove that the disease must have had its origin in utero. Hence the gradual accommodation of the system to the continued increase of the water in the ventricles of the brain, till their enlargement was altogether prevented by the complete closure of the sutures by ossification. The deafness in this case must have been produced by the compression of the effused fluid on the auditory nerves, causing thereby an inactivity or paralysis of their functions.

It is not easy, however, to account for the non appearance of dilated pupils, when strabismus and other symptoms pe-

culiar to the disease were present. The want of speech is a concomitant effect of the want of hearing.

It appears from the writings of Tulpus, Hildanus, Morgagni, Whytt, Caron, Wister, Currie, Ford, Underwood, and others, that the quantity of water found in the ventricles of the brain after death, has amounted, in some cases, to near three pints; but in no instance, that we are acquainted with, has it been known to amount to fifty-six ounces; which was the quantity found within the ventricles of the case above related. Hyeronimus Mercurialis seems to be the first writer who mentioned the disease as having its seat within the ventricles of the brain.

We are also informed that the quantity of water within the ventricles has been so great in some cases, as to stretch them to such a degree, that the brain has had the appearance of a thick membrane; and of all the solid contents of the cranium, scarcely any thing was to be seen, but the cerebellum, which has been so compressed as to resemble a small gland.

M Lieutaud and others, who have paid particular attention to morbid anatomy, have supposed (with a great deal of truth) that water in the brain has been brought on by fever, small pox, and other acute diseases; but the symptoms and duration of these complaints widely differ from those which have their origin in utero. In the former, the patient's life is cut short in a small space of time; while in the latter, the existence is spun out to the length of many years. This distinction is of the greatest importance to the medical practitioner in forming his induction of cure.

REMARKS.

In many instances of a considerable collection of water in the ventricles of the brain or between this and the dura-mater, the effusion of the serous fluid has found its way along the medulla oblongata as far as the sacrum; it has even oozed out at the coccyx and has corroded some of the vertebræ. Ruysch, Morgagni and others, have seen such effusions. Some alteration of the kind might have been observed in the above autopsic examination, as the boy whom we have seen in his best state of health, had no use of, nor strength in his lower extremities. A case of a more enlarged cranium, that is twenty seven inches and a half, (of a girl twelve months only) is mentioned in the *Edinburgh Commentaries*. (Vol. 3. page 406) But Vanderviel speaks of a boy born healthy, whose head began to enlarge at six months of age.

At two years, when he died the circumference of the cranium measured an ell, which corresponds exactly, if a Flemish ell, to the same size, within half an inch (Tom. 2. Obs. 14. page 104.) Hydrocephalus was, no doubt, the only cause of these prodigious enlargements. In April, 1816, we were desired to see the subject of this observation, which has been most accurately described. He had a slight eruption much similar to the small-pox, and a little fever, through the various stages of which, he was afterwards reported to have passed without any remarkable alteration or interruption of his usual health. The constitutional action of such a disease on the circulating and collected fluids, would probably have proved fatal in this case; we have therefore doubted of its genuine nature.

THE following case of DISPLACED ABDOMINAL VISCERA is dedicated by ALEXANDER RAMSAY, M. D. Lecturer on Anatomy and Physiology, to the Members of the Medical Society of Savannah.

(With a plate.)

Washington Hotel, New-York, November 4, 1817.

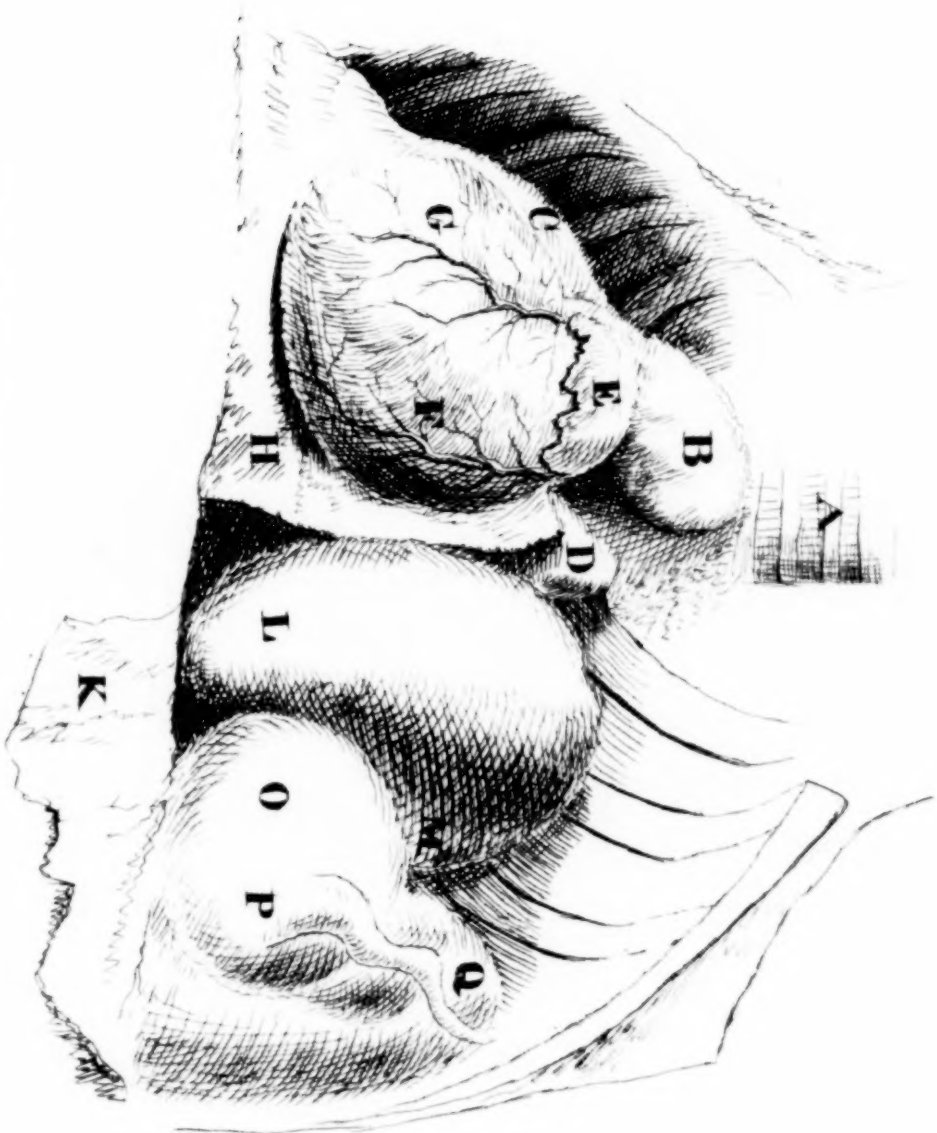
GENTLEMEN,

IN February last, when I had the honour of lecturing before your society, you will recollect, that I demonstrated the following case, which occurred amongst others, during our investigations of the laws of life, sensation, and intellection. At that time, I laid before you an instance of diaphragmatic conformation, which I published in the Medical and Physical Journal of London, March 2, 1814, to which I beg leave to refer. In the case here detailed, the peculiarity of the diaphragm is more extended, admits of different circumstances, and is attended with unusual appearances in the great intestines. The hand of nature had relinquished finishing the tissue of the diaphragm at K. where a circular orifice is found by which means the compression of the abdominal muscles, it would seem, gradually transferred the stomach and great intestines into the left thoracic cavity. The diaphragm and references will sufficiently explain the subject.

I beg leave to assure you, gentlemen, of the high consideration of your obedient servant,

ALEXANDER RAMSAY.

The subject of the present essay seemed a full-grown fœtus—A. The trachea—B. The thymus gland, small, and



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perfect only on the right side—C. The right lung—D. The left lung, very much compressed from the circumstances to be mentioned—E. The left auricle—F. The left ventricle, *originally thrown up in this attitude*—G. The pericardium—H. The diaphragm behind—K. This organ has not been completed by nature ; an opening was found, which admitted the stomach and great intestines to the occupation of the left thoracic cavity—L. is the pyloric extremity—M. The cardiac—O. The caput coli, which had not been tied originally to the right (clew muscle) as usual—P. The vermiform appendix—Q. The colon—K. The union of the pleura and peritoneum *thrown down*, which formed the sac containing the viscera mentioned.

A Steatomatous Tumor removed without an operation. By
DR. SAMUEL AKERLY.

A female child, of four years, was afflicted with a large tumor, occupying the anterior part of the thigh, from the groin half way to the knee. Its commencement was dated shortly after birth, from which time it continued to increase till the summer of 1815, when it was the size of two fists. Nothing had ever been applied by way of remedy ; but its increased magnitude, and progressive advancement, rendered some determination necessary, and accordingly, it was agreed to remove it, the parents only wishing to postpone the operation till autumn.

When I first saw this tumor, the base was broad, appearing to diffuse itself in the cellular substance of the thigh, without the looseness and distinct feel of steatomatous tumors in general. Its apex was not then much elevated, but rather soft, leading those physicians who saw it to the belief of its being an encysted steatoma. The father of the child had a steatoma on the outer part of his thigh, of the size of a hen's egg, but suffering no inconvenience, he let it remain. The child was otherwise hearty and well, and experienced no pain or difficulty, except from its size and situation.

In the mean time, the child was vaccinated, and went regularly through the different stages of the complaint. In September, which was the month succeeding the vaccination, the tumor became very much inflamed and painful, and rapidly enlarged, without any apparent cause, except a fall, from which the child received no pain or injury at the time. The tumor now became harder and more distinct, but con-

tinued to enlarge in every direction, extending downwards almost to the knee, and upwards above the groin. spreading laterally and pressing the labium, which was much swelled, far out of its natural position. A fever ensued, and the child wasted away very rapidly. For three weeks, antimonial powders were given, and saturnine and ammoniacal solutions applied externally. The pain and inflammation subsided, but the tumor was very little reduced. While the child lay confined to bed, during the inflammatory state of the swelling, a cutaneous eruption, of the most irritating kind, commenced on the foot of the affected thigh. From a small watery vesicle, by rubbing and scratching, the foot became ulcerated and scabby. The eruption spread lightly on the leg, above, and soon produced ulceration and discharge from the edge of the steatoma, which appeared to diminish. In hopes of discussing the swelling by external suppuration, I encouraged the discharge by the application of savine cerate, and brought the whole surface to a state of ulceration, which, in a short time, effectually recovered the tumor, and restored the child to health.

Resolution of steatomatous tumors, by external suppuration, is mentioned by Boyer.*

SAMUEL ACKERLY.

A REPORT on the use and efficacy of the MURIATE OF GOLD, as an antisyphilitic remedy, in the practice of the New-York Hospital. To SAMUEL L. MITCHILL, M. D. attending Physician.

New-York Hospital, July 23, 1817.

DEAR SIR,

AGREEABLY to my promise, I have drawn up for your perusal, a list of cases, in which the Muriate of Gold was used in the cure of syphilis, which fell under my care during my residence in the New-York hospital as house physician. This remedy, which you introduced into the practice of our hospital in the year 1811, with great success, was, for some reason which I cannot discover, totally neglected, until you resumed its use in May, 1816, while my predecessor, Dr. James W. Warburton resided in the hospital. Since that time it has been given very extensively, and with a success which, in my mind, has established the efficacy of the remedy.

* Boyer's Surgery, translated by Dr. Alexander H. Sterens. vol. 1. p. 349.

In addition to the cases which have been here drawn up, Dr. John K. Rogers, the house surgeon of the hospital, at the time the remedy was resumed, has in his possession an equal number, in which the muriate of gold was given, with the same result, to patients under his care. That gentleman is now in Europe, and it is not, therefore, in my power to give the result of the whole practice in the New-York hospital, with the medicine in question.

The cases selected for the exhibition of this remedy, were those in which it was ascertained, that no mercury had been taken; so as entirely to obviate the suspicion, that the recovery of the patients was any way facilitated by the previous use of that remedy.

When the gold was first tried, in order to be convinced of its efficacy, no other dressing was made use of to the chancres, than dry lint, as will appear from many of the cases which I have detailed. But after its success seemed to be sufficiently established, local applications were made to expedite the cure; always avoiding, however, such as contained mercury in any form. This was particularly attended to in the first cases which occurred under the care of Doctors Warburton and Rodgers, in almost all of which no local applications were made. Those of the first of these gentlemen I have also detailed, from some minutes which were left in the hospital when he retired. It is not, however, in my power to specify the particular cases in which this plan was pursued. The number was so great as to have caused it to be considered unnecessary, when I took charge of the patients, any longer to adhere to that method.

Several of the patients, whose cases are here stated, have returned to the hospital with other diseases, many months after having been cured of syphilis by the muriate of gold. These patients have remained free from secondary symptoms, except in one instance, which is mentioned among the cases. This is full as much as we ever expect from mercury, and particularly when exhibited in a hospital, where it is frequently impossible to induce the patients to remain and continue their remedies, after the disappearance of the local symptoms; and where, consequently, secondary symptoms may reasonably be expected.

The result of the experiments with this remedy, seems very fairly to prove that it is fully equal in power to mercury in curing primary syphilis. In some instances, indeed, a more rapid cure has taken place than I have ever known produced by that mineral. When secondary symptoms have supervened, as far as I have yet ascertained, the gold cannot

be depended on for a radical cure. One case, indeed, under the care of Dr. Warburton is noted as having succeeded: the particulars of that case are not in my possession, and I have not had it in my power to ascertain whether the patient ever suffered a recurrence of his disease.

I have not detailed in each case the particular manner and dose in which the remedy was given, because there was one general rule adopted for the whole. The patients commenced with one-eighth of a grain four times a day, and when necessary, this was increased to twice that quantity. Generally, half a grain a day was sufficient to produce a cure. The medicine was prepared in the manner ordered in the pharmacopœia of the New-York hospital.

The only sensible effect produced by the medicine, was a very considerable increase of the discharge of urine. This was a very constant effect of the exhibition of the muriate of gold. Indeed, so considerable was it, that I was led to make use of it in dropsy, and in one case with success. A few other trials were made, in cases where other remedies had failed, which gave sufficient encouragement to prosecute the inquiry, without establishing any thing very decisive on the subject.

Although the muriate of gold was given in some instances, to the quantity of a grain and a half in the day, I never in one case knew it to do any injury.

I am, with sentiments of the highest respect,

Your obedient servant,

EDWARD DELAFIELD.

To Dr. Samuel L. Mitchill, attending Physician
of the New-York Hospital

We have an annexed statement of eighty-one registered cases,* mostly of persons, with few exceptions, in *middle* age, and of hard and labouring occupations. No incidental circumstances, during treatment, have been omitted, that arose from complicated symptoms, or different diseases, and from the operation of the gold, which had remarkable diuretic effects. To the above communication we cheerfully agree, as it supersedes the insertion of the numerous cases, which do not comport with our present limits, and now we present the result to our readers, as an important and authoritative document; it proclaims the efficacy of the muriate of gold, and places it beyond the reach of any reasonable controver-

*By Mess. Delafield and Rogers.

sy, at least, during the first stage of syphilis, under the formation of primary chancres and buboes. This is a restriction upon the more unqualified extension of the remedy to confirmed lues and other diseases, by the inventor, M. Chretien, of France, whose name, and new remedy, we regret to say, appears neglected by the medical faculty of that country.

We, nevertheless, think it our duty, and a very interesting task for our medical improvement, further to experiment, with a view principally to ascertain the permanent cure of primary symptoms, in their comparative results, with changes of season and temperature, in all ages of life, and with the weaker sex, in all its accessory functions. Much also remains to be considered, in relation to cases of the disease, not admitting a remedy, which has but one and internal mode of exhibition, and that during an undefined period of time. We remark in the statement, that a few cases only have been cured in less than a month, that a great majority have required two months, and many of these a still longer time. It would be desirable also, that since primary chancres have generally been so soon healed under the influence of the muriate of gold, as to induce the prescribing physicians not to confide in a perfect cure, until after a further continuation of the remedy, there should be some rule to go by, from symptoms, pulse, or otherwise, whereby the practice could be extended or abridged, according to exigencies of the case, and without hazarding its main object of an effectual cure.

MONOGRAPHY of a singular defect of SECUNDINÆ, with a view to prove that the Placenta performs a Pulmonary Function for the Fœtus. By JOSEPH CANBY, M. D. of Lebanon, in a Letter to the Editors, dated November 24, 1817.

GENTLEMEN,

IF you deem the following case of *lusus naturæ* in the fœtal economy of any importance, you are at liberty to insert it in your Repository. I do not know that it can be of any practical importance; but I think it evinces the fact, that the placenta does perform a pulmonary function for the fœtus.

Mrs. R. had suffered several abortions in consequence of the previous death of the fœtus at about the sixth month. Having conceived again, and being anxious to bring to maturity, I was consulted concerning her. Upon inquiry, was informed that during her former gestations she was unusually hearty, her bowels regular, and her health in all respects good, except a head-ache at times.

During the progress of this latter pregnancy, I paid particular attention to the state of her health, but without effecting the safety of the child. About the eighth month she informed me that she believed the child was about dying, as its motions were very feeble. Accordingly, three days afterwards, to wit. on the 10th December, 1816, I was called to her, and found her in labour, the hairy scalp presenting. Being somewhat surprized at this circumstance, at so early a stage of the process, I enquired whether the water had been evacuated, which was answered in the negative; and she added, that in her former labour she never had any.

Parturition progressed slowly; but being at length completed, behold a fine large plump child, but no secundines! In place of a placenta there was merely a button-like expansion of the funis umbilicalis, by which it was attached to the uterus. Its colour was livid. Putrefaction had not progressed so far as to occasion the emission of any offensive effluvia. The colour, therefore, could not have resulted from that cause. It appears evident to me that the child had perished for lack of oxygen or decarbonization.

This lady had been told, at her former abortions, that the foetus had died for want of nourishment; but it evidently was not the case in this instance, as the child was sufficiently large and plump.

Respectfully your humble servant,
JOSEPH CANBY,
of Lebanon, Ohio.

To the Editors of the Medical Repository.

RELIEF TO SUFFERING HUMANITY.

NEW method of extracting the STONE from the BLADDER, without the formidable operation of cutting. In a Letter from Dr. CALVIN CONANT, to the Honourable SAMUEL L. MITCHILL, dated August 14, 1817.

HONOURED SIR,

A few months ago I was called to visit a boy of fifteen years of age, who had long been troubled with frequent suppressions of urine, in consequence of a loose stone, which occasionally fell into, or upon the sphincter of the bladder.

I frequently introduced a small silver catheter, and removed the stone from over the sphincter, and in this way daily evacuated his water, administering soda and other medicines generally used in such cases, without any apparent success.

Worn out with my daily toil, I at length resolved, if possible, to extract the stone.

For this purpose I furnished myself with a very fine silver wire, about twenty inches long, made elastic, by being frequently drawn through a wire-plate, without being annealed.

I then drilled two holes through the fore end of the catheter, upon the convex part, about one-eighth of an inch asunder, through which I passed the two ends of the wire, bringing them through from the anterior to the posterior part of the catheter.

I soon found, by shoving the wire forward, that a handsome loop was formed, and that by pulling the two ends back the loop would be brought in so close a contact with the end of the catheter as to be no material hindrance to its introduction into the urethra.

Thus prepared, I visited the boy, and determined to extract the stone, provided I could enloop it, and should find it so small as not to endanger a laceration of the urethra in its extraction; to determine which, I had graduated the ends of my wire into spaces of a quarter of an inch each.

Having introduced the catheter, felt out and enlooped the stone, which was done with little difficulty, I examined my scale and found one inch and a quarter of the wire was taken up in surrounding it; I changed its situation and enlooped it anew a number of times, until I found I had enclosed it in such a manner as to occupy the greatest length of loop, which at this time was one inch and seven-eighths. By this I knew I should be able to bring the stone and wire into the urethra, which would not expose it to so great a laceration.

Having drawn my ends of the wire very tight to keep the stone firmly enclosed in the loop, I proceeded, with gentle but varied motion, to draw it through the urethra, which I was happy enough to effect with but little difficulty, or pain to the subject.

I injected for a few days the cold mucilage of slippery elm (*Ulmus Americana*) into the urethra, causing him to drink of it freely, as well as a solution of soda, and now happily find him in sound health.

I am, Sir, with sentiments of esteem,

Your humble servant,

CALVIN CONANT.

To Samuel L. Mitchill, M. D.

 INTELLIGENCE.

Atmospheric Constitution and Diseases of New-York.
November, 1817.

SINCE our last quarterly report, the summer has elapsed, and the autumnal period is nearly closing, with less atmospheric vicissitudes than we remember to have observed in this temperate zone; nor have we witnessed those rains, freshets, and excessive heats, which have again distempered with the yellow fever the inhabitants of our southern ports of Charleston, Savannah, New-Orleans, and others, from the 30th degree of latitude north to Havannah. The American pestilence has not been heard of, however, in any more southerly direction. Yet a more remarkable stillness of the elements has been felt in October, when a great part of the Leeward Islands were ravaged by one of the most violent hurricanes in those latitudes. The heat of the summer, which has never ranged above the maximum of 87 degrees, has been succeeded by an equally pleasant fall. Momentary frosts were experienced at early periods, and endangered the crops of maize; but this and other more precious grains, with all varieties of fruit and growing herbage, have abundantly repaid our agriculturists for the injuries and deficiencies of the former year. Through the regular changes of season, and temperature of heat, moisture, cold, and winds, which promote and protect vegetation in all its stages, animal life is equally thriving under a beneficent and healthy influence, at least throughout inland country populations, from whence we have received no account whatever of new, nor of the usual fevers and dysenteries. On the other hand, an official report of our Board of Health, has confirmed at the close of their session, our uninterrupted preservation in this metropolis from every malignant disease. Of the numerous improvements, indeed, with which this city continues to be embellished, none, we think, has been more and gradually conducive to its healthiness, than the extension of its former limits on both rivers, forming what is called South and West streets. By it, many wharfs and docks, old receptacles of putrid, or perishable matter, subject

to exhalation, have been filled up by hard dry ground, by pavement, in several places bordered by stone work or brick houses. The widening also of many streets, the opening of others, have benefitted the old and most crowded parts, which are now more accessible to a free ventilation, although some of them remain, which are incumbered with old frame houses and buildings, seated on deep masses of impure earth, or filth, accumulated during many generations. To these improvements, and to an extensive surface of vegetation in the centre of the city, we are indebted, no doubt, for the gradual disappearance of summer epidemics, which, under various names and characters, have from time immemorial infected it. But one remains; the cause and nature, we candidly confess, appear to us very mysterious; a disease much to be dreaded, perhaps as fatal as any pestilence, were it to prevail like a general epidemic on all individuals; it is our typhus gravior, of which nearly a hundred victims have perished during this and the late months, in this city and neighbourhood. Its characteristic features materially differ from those described by modern writers, especially by Robert Thomas, and seems to baffle the various modes of treatment recommended by them. This last author represents it to be much like an ordinary putrid and exanthematous fever, even in its first stage; but our typhus gravior shows no petechiæ nor cutaneous affection; the tongue is mostly natural, and the febrile paroxysms rare, short, and very irregular; after them, the pulse rather loses than gains in pulsation, and remains very weak. He defines it infectious and contagious; but in no instance do we see it communicated to the attendants. He designates its abode among the poor and labouring classes, but our American typhus is a disease of higher classes, as much, and perhaps more, than of the lower; nor do we find any reason to trace it to impure and deleterious exhalations, excessive heats, or vicissitudes of the atmosphere; for none of these causes have lately existed among us. Our most eminent physicians can witness that the best modes of treatment, which they variously try, are here unsuccessful, and typhus gravior is very mortal. It differs, therefore, from that of other modern writers; it requires some other ætiology on its true cause and nature, and a specific mode of treatment as yet untried, which is self-evident in relation to this interesting subject. We will, at present, mention only our principal motives for considering our typhus gravior as absolutely different from that of the authors. First, instead of offering an increase of animal heat, as Thomas says, to

104 degrees, it surely diminishes it considerably below the standard of health. Second, it affects no visceral determination of bile, nor of blood, nor of any of the principal secretions of the human body. Third, it commences by a decrease of sentient powers, it progresses with a confusion or disassociation of ideas, and is aggravated by muscular prostration; it follows that one determination only is characteristic of our typhus gravior; this is in the cerebrum or cerebellum, and in the nervous system. The nature of the first characteristic symptom of decreased animal heat, could still more illustrate our conclusion, if it be true that animal heat is no more to be considered as the product of respiration alone, but concurrently of the nervous system, as proved by the experiments of M. Legallois, of Paris. (Vid. Annales de Chimie, January and February.) We will resume the subject at a future period.

A New Remedy for Hæmorrhage, and many other kinds of Profluvia.

WE have something valuable from the Spanish Royal Academy of Madrid. An Apothecary of that nation, M. Ruiz, had long ago solicited the attention of the faculty to the virtual properties of a plant. The editors of the Journal de Medicine of Paris, took notice of it in 1803; afterwards an eminent Spanish physician, Dr. Hurtado, who had previously merited the honours of numerous learned institutions in France, published a work upon it. The Active Tribunal in Paris, the Medical Society of Emulation, sanctions and approves it. At the conclusion it gives a handsome report, drawn by Messrs. H. Cloquet and G. Breschet. This remedy is the *Rotanhia*, of the genus of the *Krameria triandria* of Linnæus. *Krameria Foliis oblongis obovatisque acuminibus floribus, triandris, corollis tetrapetalis.**

It behoves us, who with diligence and pride have always attended to the description and utility of all American articles of Materia Medica, to diffuse the information throughout this continent, adjacent to that from whence this plant has been gathered, hoping that we may soon obtain it, inspect its character, and estimate its properties. We will

* Vid. La flore du Perou et du Chili, vol. 1. page 61. les memoires de l'Academie Royale de Madrid, vol. 1. page 361.

therefore translate the last-mentioned report. (Vid. Journal de Medicine, vol. 37, page 212.)

The Society has ordered us to examine and report on the subject of an essay presented by M. Hurtado, treating on the efficacy of the *Ratanhia* in hæmorrhage of passive or adynamic nature,

“ A series of twenty-nine cases, collected by the author, either from his own patients or from those of Messrs. Ginesta and Bonafos, both professors of the Royal University of Madrid, offers to us instances of asthenic menorrhagia, of floodings, of hematuria, pneumorrhagia, hematemesis, epistaxis, which have been promptly and safely stopped.

These observations, perspicuously digested, are all from individuals of debilitated constitution from anterior medical applications, and often by the continuation of the hæmorrhage itself. M. Hurtado, who thinks that the *ratanhia* is the first among powerful astringents, particularly declares, that it answers only in the cases which we have enumerated, and that it should not be employed in active hæmorrhage, until by their continuation the subject is thrown into an adynamic state of exhaustion. This observation perfectly corresponds with the principles of the French school.

In consequence of the success of this remedy against prolonged flowings of blood, it is inferred that it might be effectual in other kinds of profluvia, and among these M. Hurtado mentions as effectually cured, cases of leucorrhœa, of diarrhœa, of blenorhagia, or gleans, which had resisted the power of the draught of Chopart, and of the wine of Fordyce, &c.

With these interesting results, the author gives us the history of all the most interesting facts relating to the genus *Krema-ria*, to which the *Ratanhia* belongs, of its chemical analysis, and of the mode of preparing the different extracts, to make use of it in different diseases.

This species of plant belongs to the *triandria trigynia* of Linnæus, and its name is derived from the creeping or projection of its roots, horizontally under the surface of the ground. It results from the last analysis, that the genus *Khrameria* belongs to the *Triandria trigynia* of Linnæus; that the *Ratanhia* has a shrubby stem; oblong, obovate, pointed, velvety downy leaves; a corolla of four petals, almost papillionaceous; which we observe, by the bye, seems to us very remarkable in this plant, that is both triandrous and trigynous. It grows on grounds where it can be most exposed to the vivid rays of the sun, and of a clayish nature. It was first used in Peru to clean and harden the gums, when it was discovered that it possessed a remarka-

ble stiptic property ; experiments were attempted in medicine, and so satisfactory, that quantities of it were procured for the mother country. The extract is prepared and dissolved at Madrid in rose-water, with a small quantity of vinegar or lemon-juice, after it has been obtained by a long decoction of the roots, and dried by a tedious evaporation. It is hard, brittle, dark red, shining, and much similar to the flakes of the sanguis-draco. It burns on ardent coals without melting ; if chewed, it has no adherence, and a most acerb taste. Its dose is from half a dram to two drams, in alarming hæmorrhages.

Such is the abridged analysis of the memoir of M. Hurtado, which we think merits the attention of the society. We wish he had mentioned, besides his numerous instances of successful exhibition of the ratanhia, those where it may have proved unsuccessful : perhaps he has observed none ; yet, what remedy is known never to have failed, even when its happy results were most depended upon ?”

H. CLOQUET.
G. BRESCHET.

Paris, Dec. 4, 1816.

A PAPER on the Effects of the COLCHICUM AUTUMNALE on GOUT, proving the operation of Medicines through the medium of the circulating Blood. By Sir EVERARD HOME, Bart. V. P. R. S.*

(Philosophic Magazine, Nov. 1816.)

WHEN I laid before the Society my paper upon this subject, I was anxious to establish what appeared to me to be two important facts ; one, that the infusion of the *colchicum* can be received into the circulation without producing any permanent mischief ; the other, that it is through the medium of the circulation its beneficial effects upon gout are produced, and therefore the sudden relief which is experienced can be readily explained. Having attended to the effects of the *eau médicinale*, and of this medicine, for several years, in cases of gout, both in my own case, and in those of my friends, I found, invariably, that they diminished the frequency of the pulse, ten or twenty beats in a minute, and this effect generally took place about twelve hours after the medicine was exhibited : I therefore considered this to be the criterion of the constitution being under

* From the Transactions of the Royal Society for 1816, Part II.

the influence of the medicine ; and when I found that the pulse was affected in the same way by the medicine received into the circulation, and in a much shorter time, I became satisfied that in both cases this arose from an effect upon the circulation, and not upon the stomach, and therefore did not further prosecute the inquiry ; since exhibiting larger doses could only confirm what is already known, namely, that the medicine is capable, when injudiciously used, of producing very violent effects.

It has been suggested to me since the paper was read, that the only mode of proving that the medicine acts through the medium of the circulation, is to show, that when a sufficient quantity is received into the blood, all the violent effects are produced that result from a large dose taken by the mouth ; and as I had no object but the pursuit of truth, I lost no time in complying with this suggestion, and introduced into the circulation of a dog 160 drops of the same infusion before employed

The animal instantly lost all power of voluntary motion, the breathing became extremely slow, and the pulse was hardly to be felt. In ten minutes, the pulse was 34, the inspirations natural, which are 40 in a minute. In twenty minutes, the pulse was 60, the inspirations 30 in a minute ; a tremulous motion had taken place in the hind legs. In an hour, the pulse was 115, and irregular ; the animal was capable of sitting up, but was in a state of violent tremor, and the inspirations could not be counted.

In one hour and a half, the tremor had gone off, the pulse continued the same ; the animal made ineffectual attempts to vomit, and continued to do so for ten minutes, accompanied with great languor ; the inspirations were 54 in a minute.

In two hours, the pulse was 150, and very weak ; the animal had voided one ounce and a half of water, had vomited twice, each time bringing up a quantity of mucus tinged with bile, and had two liquid stools

In three hours, had vomited again, and had another stool ; the pulse too weak to be counted.

In four hours, continued extremely languid.

In five hours, vomited some bloody mucus, and expired.

On opening the body, the stomach contained mucus tinged with blood, and its internal membrane was inflamed ; the duodenum had its internal surface universally inflamed ; the same appearance in a less degree was met with in the jejunum and ilium, and more strongly marked in the colon than in the ilium.

The facts which I have now adduced, afford sufficient proof of the action of the *colchicum autumnale* upon the different parts of the body, being through the medium of the circulation, and not in consequence of its immediate effects upon the stomach and intestines.

PROPOSED means to restore the Sight in cases of CONICAL CORNEA. By Sir WILLIAM ADAMS.

THIS disease begins with a gradual thickening of that covering, visibly perceived in the centre, facing the pupil. It causes no inflammation nor opacity, but it slowly progresses, until the cornea ceases to be a segment of a regular spheroid, and becomes conical; it acquires then a somewhat *lurid* brilliancy, except on the apex, where sometimes an opaque point is formed.

Those who are afflicted with it, remark in the first stage, that the length of their sight diminishes; their myopism progresses, until they cease to see objects distinctly, however near they may be to their sight; large or bulky masses will not be discerned at three or four feet distance.

Sir William has known a young person with both corneas grown conical, who could not see well enough to walk alone; he has, therefore, conclusively asserted, that this diffusion or divergence of sight is to be ascribed to the considerable refraction of light, upon a surface enlarged in this kind of shape. Led by induction to the peculiar refringent or refractory function of the crystalline lens, which being extracted or couched, a sufficient quantity of the rays of light might be conveyed to the retina; he operated as in cases of cataract, and his experiment proved to be a correct resolution of a problem. A young girl had nearly become blind by this organical disease, but she recovered the sight by the operation of the cataract, successively performed on both eyes. Neither of the crystalline lens had been in the least altered by opacity, but the suppression of an organic part which had not been diseased, replaced in a proper degree of agency that which had been injured. (Vid. Journal des Arts et Sciences, Annales de Chimie.)

Affusion and Ablution of Cold Water.

THE good effects of this practice have been attested by Thomas, in the treatment of typhus gravior, and other typhoid diseases, especially in the early stages of it. "Its operation extends beyond the mere abstraction of heat from the surface; it acts powerfully on the nervous system." It follows, therefore, that provided it could not arrest the movements of life in extreme lowness of morbid action, it would always recruit the animal powers, and better equalize them for the improvement and recovery of the patient; and in cases of diminished animal heat, the momentary abstraction produced by it, would by subsequent and repeated shocks, be raised to the healthy standard. Why this mode of practice is so little resorted to by American physicians, we are not able to determine. The editors, however, have been informed by Dr. Vine Utley, Fellow of the Connecticut Medical Society, that several years before the publication of the work on that subject, by Dr. Currie, of Liverpool, he was in the habit of experimenting with it in acute, as well as in chronic diseases; that the repeated success of this application has been witnessed by a great number of persons in the district where he resides, and where he has used it for patients in the last exertions of expiring life; that cold affusion in fevers has been frequently the only necessary remedy, save an emetic and a cathartic; and that its good effects are oftener obtained within fifteen minutes, than medicines could ever procure in a quarter of a lunation. Dr. Lyman Spalding, of this city, has also confirmed to us the efficacy of cold water affusion in typhus fever upon the head, where he thinks the first determination takes place.

White Serum in the Blood.

[Extract of a Letter from Lyman Spalding M. D. to Baron Larey, M. D.]

ON the 6th of December, 1815, Mr. Lawrence S. Shuler, a student in the College of Physicians and Surgeons of the Western District, and an inhabitant of Charleston, Montgomery County, New-York, was bled by one of his inmates, to the amount of sixteen ounces. The blood was received into a clean white earthen bowl. The orifice in the vein was of the common size, and the blood flowed in the usual manner. No peculiarities attended the blood-letting.

The blood coagulated in the usual time and manner. The serum, on separating, was almost as white as skimmed milk, and looked very much like it; or rather, it appeared more like flour and water mixed together. On standing twelve hours, there arose a pellicle on the serum, as thick as will arise on milk after it has been once skimmed. This pellicle was much whiter than the serum itself, and very much resembled a second scum which will arise on milk. The pellicle re-appeared several times after it had been thoroughly mixed with the serum.

The buff, though natural and inconsiderable, indicated that there had been a slight increase of action in the heart and arteries. The top of the clot was florid; beneath, grumous. About one-fifth part of the whole mass was serum. The blood and serum were demonstrated, by me, to the class of medical students.

Mr. Shuler is about twenty-five years old, with sandy hair and florid complexion. He had complained, for several weeks, of a slight pain in his head, and some fullness or plethora, which he thought required blood-letting. Mr. Shuler had lived on the usual diet of that country; tea, coffee, bread, butter, beef, pork, &c. He was never sick in his life, and never before lost blood.

Hewson and Hunter make mention of several cases of white serum, and no doubt you have often seen it in your extensive practice; but this is the first which has fallen under my view.

New-York, April 1, 1816.

PROFESSOR LOEBEL'S *Observations upon the Benefit of INSOLATION in different Complaints, particularly in Cases of the AMAUROSIS.*

The physicians of former times cured different complaints by exposing the suffering parts to the action of the sun-beams, and practised this method particularly in disorders of the lymphatic system, such as different kinds of dropsy, and the gout. Professor Loebel, of Germany, has proved, in a dissertation, that insolation is with injustice neglected at present. According to his opinion, the effects of insolation upon the suffering organs are the following:

1. The warmth of the sun increases the activity of the lymphatic system, and of the vessels.
2. By the influx of light, the vital activity is roused and heightened, both in the afflicted parts and the whole body.

3. The development of oxygen, or vital air, caused by the action of the sun, also operates chemically upon the organization.

For these reasons, M. Loebel recommends insolation in the following cases :

1. In chronic anasarca, not founded upon any organic defect, where the extremities feel cold, and a general weakness and torpor appears in the lymphatic system, particularly in metastatic exanthema, after repelling the tinea capitis, the itch, or herpes, or after an ill-managed scarlatina.

2. In the chronic gout, particularly when all the organs are suffering by its long duration, when contractions, tumores ossium, and insupportable pains prevail ; also where the gout leaves a partial palsy.

3. In all complaints attacking the tractus intestinorum, such as chronic spasms of the stomach, where weakness in the nervous system prevails, and in chronic diarrhœa ; as also in the fluxus cœliacus and hepaticus, in chronic catarrh and chronic erysipelas.

4. In different forms of venereal complaints, in particular during the use of mercurials, when it serves to heighten and increase the effect upon the lymphatic system and the skin.

5. In diseases of the bones, tumores ossium, and in general or partial caries.

6. In subjects weakened by immoderate venery.

7. In nervous apoplexy, and palsy of single parts.

8. In the nervous gout of the head.

9. Against aphonia, when the incapacity of speaking is transitory, and not occasioned by the destruction of the organs.

10. In the marasmus senilis.

11. In the palsy of the lower extremities, particularly where the nervi cruales have suffered, and a state of inactivity and want of irritability prevails in them.

12. In amaurosis, from idiopathic causes, and from weakness of the retina or ciliary nerves, or when a palsied state of the optic nerve produces this complaint, or when it arises from a metastasis of gouty, venereal, or itchy matter.

In all diseases where an exalted irritability or plethora prevails, insolation must not be applied.

Neither in acute violent inflammations, general nor local ; in affections of the lungs, which show a disposition to inflammations, spitting of blood, or congestion.

Manner of Application.—1. This method of cure must not be applied in stormy or moist weather, or when east,

west, and north winds prevail. Insolation requires calm days.

2. The patient, during insolation, must not sit or lie on the bare ground, but a leather skin must be placed under him, as was the custom of the Greek and Roman physicians.

3. Insolation must neither be applied on an empty stomach, nor directly after dinner: but, if the complaint requires the application during noon tide, it is advisable to let the patient previously take a little food.

4. If insolation is to be performed on single suffering parts, the rest of the body must be covered with a white linen cloth, and only that part exposed on which the sun-beams are to act.

5. Insolation must be adapted to the different cases: in one case half an hour or an hour is requisite, in others a period of some hours. Again, in some cases the rays of the morning sun, in others the most powerful rays of noon or afternoon, are necessary, according to circumstances and individuality. In complaints of the eyes, viz. in the amaurosis, Mr. Loebel advises to shut the eyelids, and to let the sun-beams act through half convex glass, placed upon the eyes thus shnt

Professor Loebel communicates many remarkable cures of amaurosis by applying local insolation.

From subsequent foreign journals we make the following extract:—

A very ingenious oculist, Professor WEINHOLD, M. D. at Merseburg, has published the following remarks in recommendation of the use of Insolation upon the torpid Retina, in the Jena Literary News, Merseburg, October 4, 1815.

“ I fully coincide in recommending insolation through *half-convex* glasses, having, in quality of practical physician and oculist, frequent occasions to observe the danger attending the use of the common burning glass. For this reason I commonly cause large burning glasses to be cut into halves, or cover them half with black paper, by which means the dangerous focus is avoided.

Insolation proved disadvantageous in the amaurosis accompanied by a heightened irritability, but advantageous in that attended with torpor, or, as the ancients say, *sine materia*; of course, in the amaurosis, the consequence of nervous complaints, unattended with gout, lues venerea, or psora.”

A NEW TEST for discovering the OXYD of ARSENIC, and of CORROSIVE SUBLIMATE in Solution, by their respective Colour.

TAKE of fresh made starch, with a sufficient quantity of iode* to make it of a fine blue; add water enough to dissolve, and mix both equally, and this will be your test to detect any of the mentioned deleterious substances.

If a few drops of an aqueous solution of the arsenical oxyd are poured in the testing mixture, its blue colour will disappear and be turned into brown. A solution of corrosive sublimate will produce the same effect, perhaps more rapidly, than either of the two; a few drops of strong sulphuric acid proves the presence; they instantly restore the blue colour in its greatest purity, in an arsenical mixture; but they will not, nor can any acid, where the corrosive sublimate is present. (Brugatelli Giornale di Fisica, ix. 465.)

PRIZE QUESTIONS proposed by the Royal Academy of Medicine of Paris, May, 1816.

I. What medical cautions are required in great surgical operations? And what medical objects of clinical practice will insure their success?

Is it the interest of science and of patients, that the physician and surgeon should make it their duty to

*“The substance in question is prepared from kelp. This made a lixivium with water, and the solution evaporated to dryness. This dry salt is put into a tubulated retort, with a short neck fitting into a large globular glass receiver, leaving room for the air to escape: strong sulphuric acid is poured on the salt through the tubulare of the retort, a violent effervescence ensues, and a violet coloured gas is driven off in abundance, which condenses on the receiver into shining crystallized spiculæ of a metallie appearance, somewhat resembling very fine plumbago. This substance is *iode*, so called from the *violet* colour (*iodos*) which it assumes when in vapour, and may be washed out of the receiver with water.

“Iode is an opake shining solid, permanent at a moderate temperature. When heated to about the temperature of boiling water, it totally evaporates, forming a beautiful violet-coloured vapour, which immediately again condenses unchanged on the cooler part of the vessel.

“The chemical properties of the iode hitherto discovered are very curious. It possesses, in a high degree, the electrical properties of oxygen and oxymuriatic acid, and when combined with hydrogen it forms a peculiar *acid*, very soluble in water, capable of assuming the gaseous form, and bearing the same relation to iode that muriatic acid does to chlorine. The action of the different reagents on iode will be the easiest understood by the reader by bearing this relation in mind.”

assist and instruct each other in all important circumstances relating to surgical operations ?

- VI. Is there any useful inference to draw, respecting the cause of urinary concretions, from the fact of infancy and old age being particularly subject to them ?
- XI. It being conceded that debility in disease may be of different nature, and that an error in judging its character, must be attended with fatal consequences, what are the precise and surest signs by which debility is to be pronounced *direct* or *indirect* ?
- XIV. Is not that disease called measles, (*Rubeola*) possibly confounded with certain acute exanthematic fevers ? If so, what are, in either, the distinct respective characters to go by ? Is the *rubeola* destroying in the human system the susceptibility of the same ?
- XV. Is the whooping-cough contagious or epidemic only ?* In the first case, what could be its mode of communication from which preservative means might be devised, during the treatment of those whom it is thought necessary to seclude ? What is the duration of the disease, and is it reproducible in the same subject ?
- XXII. What characteristic signs prove the presence of worms in the alimentary channel, distinct from those which will equally indicate other intestinal affections ?

From twenty-four subjects of prize-questions given out by the academy, we have thought proper to select only those of a general interest to medical science, and of immediate practical utility in this country.

The essays or memoirs in answer, may be written in French or Latin, with the sealed name of the author, and transmitted to Monsieur Leseure, Secretary to the Academy of Medicine, à *L'Oratoire St. Honoré, ou Rue des Francs-Bourgeois, No. 13. au Marais, Paris.*

At each last annual sitting, the academy will adjudicate honours and rewards, with a diploma of corresponding member, to the most approved and satisfactory memoirs. No

* The word Epidemic is, we presume, restricted here to circumstances of age, as it would be to circumstances of sex, expressing an attribute of puerperal fever itself. *Edit.*

limit of time is prescribed, and liberty is left to the authors, to modify the subjects of the questions, according to the various points of view in which they may best direct their investigation, provided the desired and precise answer to the matter of inquiry is obtained.

Encomiastic Notice.

DIED, at Hamburgh, at an advanced period of life, CHRISTOPHER DANIEL EBELING, professor of history in the Gymnasium, and librarian of the same. The editors of the Medical Repository were honoured with a letter from him, dated 2d May, ultimo, a few weeks before his death, written with his own hand. He apprized them of the infirmities which were lately assailing his old age; apprehending his approaching dissolution, he wished to recommend them his successors, for the continuation of a useful and scientific correspondence between the two countries. Few men have been endowed with so great a vigor of mind, and such extraordinary power of memory, as Professor Ebeling. He could write in almost all the modern European languages; he composed various works in Latin; being besides familiar with the Greek, and all the branches of ancient classical literature; his habitual industry was not less surprising, that could enable him to attend to the duties of his professorship, to the details and concerns of the large library committed to his care, and to carry on an extensive correspondence, in all languages, with the most eminent men of Europe and America. To each of them he was at all times ready to communicate general information, conformable to their favourite pursuits. He used to keep a book of notes and memoranda, renewed from time to time, of all that relates to useful knowledge, to the progress of the human mind, and of all works and productions of the learned; the transcription of which, when required, was always made by himself. All these rare endowments and treasures, of his own economy of time, were heightened by the most amiable sense of philanthropy and universal benevolence. His public spirit was not of that kind which had circumscribed itself within his own city and for his countrymen; but which breathes the good of mankind, and to which his virtues, his example, his talents, and his time, were constantly dedicated. It was with the guidance of such dispositions, that Ebeling turned his attention to the far-famed revolution of the colonies of North America; which through the valour, perseverance, and wisdom

of their sages, established in it an independent and happy republican nation. He was anxious, that with this opportunity of framing their constitution and their laws, the American people should wisely lay aside all possible causes of future evils, and of all those shackles by which the nations of Europe, and especially the Germans, are enthralled, the ridance of which they never could obtain, after many ages and revolutions, to the great injury of their vast population. Professor Ebeling, therefore, found reason to admire their established political system, and became also a warm friend of the United States; he courted the acquaintance of their most celebrated and learned characters, to all of whom the name of Ebeling is known, as well as his numerous literary presents and contributions to them. With pleasure we remark the grateful and national respect which, in this side of the world, has placed his name among the members and correspondents of many ancient and modern American scientific institutions.

Professor Ebeling long ago commenced, for the use of his countrymen, a descriptive geographical work of the United States, from the eastern and northernmost parts, down to Virginia, as yet known, of about seven volumes; one of them, that of Pennsylvania, he dedicated to the late Rev. Muhlenberg; and the last he dedicated to the Hon. Samuel L. Mitchill, and to the Rev. Dr. Samuel Miller. Of his other numerous German and Latin productions, it is not at present in our power to give a correct list, but we have said enough as an offering of our grateful respect to the memory of a great and disinterested European friend of our fellow-citizens, who, in assenting to this simple tribute of the heart, will render it more honourable than a pompous display of grief, offered to the manes of departed conquerors and potentates.

APPENDIX.

A TRANSLATION, from the Latin, of the celebrated J. MAR. LANCISI'S *Work, de Noxiis Paludum Effluviis*. By SAM. L. MITCHILL. M. D. (Continued from Medical Repository, vol. 13. page 338.)*

CHAPTER XIII.

How it happens that Marsh Effluvia are rendered more deleterious, by South and Southeast Winds, and more particularly by Mists and Clouds.

I. It often happens, that the noxious exhalations from marshes, which have done no harm, or very little hurt to the inhabitants, during the hot months, begin to exert a poisonous operation, as soon as the southerly and south-easterly winds begin to blow upon them from the marshes; or as soon as mists and clouds descend during the night. We shall attempt the explanation of the events upon mechanical principles.

II. As to the winds just mentioned, they are noxious in the first instance, because the marshy effluvia, which during the preceding drought and calms had been raised perpendicularly to a great height in the atmosphere, were borne away horizontally, or nearly so, by the southeast and south winds towards the inhabited regions; wherefore, any wind, however healthy, may produce this mischief by merely moving such a mass of vapours in any direction; and, on the other hand, a south wind itself may sometimes protect and preserve the ambient atmosphere, whenever it strongly wafts the malignant vapours another way,

* The preceding chapters to this interesting translation will be found in the 13th volume, the 1st of the 3d Hexade. The long interruption is accounted by the loss of several intermediary chapters, before and subsequently to the death of one of the former editors, Dr. E. Miller, which could not be conveniently replaced until the whole was assembled, which the present editors are now willing to give, in an additional appendix. To those who have not the old series of the Medical Repository, which is now very scarce, it is proposed to reprint the preceding chapters in a similar form, if they please to subscribe to it by advancing 50 cents, and shall be immediately reprinted, as soon as a small number of contributors can be made up.

and especially to an opposite quarter. This we have known to happen in the Leonine village at Rome.

III. Again, these winds become hurtful, because, when they pass over places mostly marine and swampy, they bring away with them corrosive salts and noxious particles, and thereby bring supplies to those portions of atmosphere which had not become virulent enough of themselves to do mischief; and since, as has been already explained, south-winds possess a great fermentative influence; therefore, whenever they blow in summer, they aid the rays of the sun; therefore, by the admixture of salts and sulphur, they are very capable of stirring up a new and greater intestine agitation in marshes, a more plentiful exclusion of corpuscles, and a wide diffusion of them through the surrounding air.

IV. The reason is easily found, why fogs and mists, at such time, are so injurious. If the same things happen in an aerial, pneumatic and compressible fluid, (provided it is charged with extraneous particles,) that we always observe to happen in compressible and tangible liquids, as in the various tinctures and waters, which the chemists call *royal* and solvent; the analogy will be sufficiently instructive. When acids or alkalies, according to circumstances, are added to such mixtures, various decompositions and precipitations take place, or the menstruum remains undisturbed; so it is with the mixtures of portions of atmosphere with each other; they are sometimes sharpened, and sometimes blunted; at one time clear, and at another cloudy; and what is exceedingly in point, the floating particles are commonly disengaged from their connection, and, by their specific gravity, are carried toward the earth, by a process called precipitation.

V. Therefore, when the before-mentioned winds, with fogs, and especially mists, are charged with saline and acrid particles, they must impart their noxious quality to portions of atmosphere that were harmless before; this more particularly happens when these very effluvia, which had been hanging, as it were, in the upper regions of the atmosphere, in a state of perfect innocence by reason of their elevation above the action which we ordinarily breathe, acquire from any cause an increase of specific gravity, and descend like pestilential arrows upon the heads of the people.

CHAPTER XIV.

By what passages the Inorganic Effluvia of Marshes find admission into Human Bodies.

I. Nobody, I believe, will doubt, that foul and pure air enter the body by the same passages. The anatomy of living animals, experimental physics, and the authority of Hippocrates, all concur in teaching us, that there are four passages by which the ambient air enters the living body.

II. The pores of the skin present themselves first, which are incessantly open to topical remedies, and particularly to baths. A considerable quantity of water is absorbed from those which are fresh and warm, and discharged by urine. They therefore cannot be impervious to air, whose particles yield to water neither in fluidity nor subtilty, and always carry watery particles with them, particularly in the neighbourhood of marshes. Therefore, the great teacher of physics in his epidemics, declares, that *flesh attracts both from the belly and from without*; and subjoins, *that the senses prove the body to be exhalant, and exhalant in every part.*

III. Secondly, the apertures of the skull, including the openings of the nostrils and ears, are exposed to the atmosphere. This, as it happens to be wholesome or otherwise, usually adds vigour, or brings weakness to the brain; and accordingly, from bad and fragrant smells, (provided there is a corresponding idiosyncrasy,) we observe, that men are damaged or refreshed, through the direct medium of the brain. But Anthony M. Valsalva, that distinguished anatomist of our time, and my dear good friend, has fully demonstrated, that the external air with which our mouths and nostrils are constantly filled, is connected with that which fill the eustachian tubes and the tympanum, and comes almost in contact with the dura-mater; and therefore, the external air, in proportion to its varying qualities, produces corresponding effects upon that membrane, and the brain within it. Justly, therefore, did the Coan sage affirm, *that the brain was the first interpreter of the air; and that wisdom was imparted to the brain by the air.* And Marinelli, in his commentary, remarks, *that the brain perceives the healthiness or insalubrity of the atmosphere the soonest of all the members.* By these air-passages, we not unfrequently observe, that purulent and ill-flavoured liquids find their way from the brain.

IV. Thirdly, the passages of the nostrils and mouth are free for the transmission of air into the lungs, and for its en-

trance into the blood. The reality of this is confirmed by the experiments of many of the more modern anatomists. Nor was Hippocrates ignorant of this, who in several of his tracts, and particularly in that *de flatibus*, not only shows the necessity of inhaling and expelling air, by all animals; but he even thinks it probable that diseases have no other origin than the air, *according as that is more or less accumulated in the body, or tainted with morbid filth before it insinuates itself there.*

V. Fourthly, through the same orifices of the human frame, to wit, the mouth and nostrils, a free passage exists for the air through the pharynx and œsophagus into the stomach, together with the spittle, food, and drink; wherefore, Hippocrates, in the same tract *de flatibus*, adds, *that food and drink bring air into the body, sometimes in greater, and then in smaller quantity. This is evinced by the belching which happen to most people after eating, when the air, bursting the bubbles which had inclosed it, flies off and escapes.*

VI. These are the ways, by which the noxious air of marshes partly creeps into the body, and is partly forced in. The knowledge of them will throw light upon many things of a more abstruse nature, concerning which it will be our business hereafter to treat.

CHAPTER XV.

What mischief the Inorganic Effluvia of Marshes excites, and by what means.

I. Though it may seem unnecessary, it is however proper to premise, that the discussion we have undertaken, does not comprehend all manner of exhalations, but is confined to those of a noxious quality, which rise from marshes during summer and autumn. For the mere hurried exhalations, which, like clouds and vapours, ascend from them chiefly in the spring, act by checking the perspiration, (for they are salino aqueous,) and inducing rheumatic affections and slow fevers, with frequent obstructions of the bowels. But the effluvia during hot seasons, until the times of the autumnal equinox, are composed of more noxious atoms, and thereby affect natives and residents, but more especially new comers, in a more serious and violent manner. What kind of malady this is, and whence it proceeds, are the objects of the present inquiry.

II. But, although it happens that the inanimate and inorganic effluvia of marshes are most commonly associated with the organic and animated, to work our ruin, (as will be explained in its proper place), nobody can deny that the inorganic ones alone are every where pernicious and destructive; as exhalations from earthquakes, or a peculiar condition of the soil, undermine the bodies of animals without any association with organic effluvia.

III. And since it has been shown in the preceding chapter, that the body has four inlets through which inorganic particles may enter, it is in order to inquire, next, into the inconveniences, and these by no means inconsiderable, which thence result, and by what means; and then whether any particles recently infused into our fluids through the aforesaid passages, are wholly exotic, or whether they are native, and do not harmonize with their accustomed temperament, motion, and fermentation; it follows necessarily, that the crasis and action of the fluids are exceedingly deranged.

IV. That beginners, however, may comprehend this manner of working mischief, I must beg of them to recollect the considerations stated in the second chapter of this book, on the qualities of salubrious air. This is characterized by its subtilty, as well as by its ethereal, elastic, and dry qualities, and the quantity of volatile acidulous salt it contains. It necessarily and naturally comes in contact with the whole external surface of our bodies. The part which enters our vessels mingles with their fluids, and is admirably adapted to purify them. By this operation, they are rendered more fluid and active. And thns, wholesome air contributes very much towards the functions of the natural economy, and particularly to the fermentative and secretory operations of the body.

V. On the contrary, marshy air is gross, less moveable, less elastic, and, what is worse, contaminated with impure sulphur and acrid salts; whence it must alter the natural functions; and being mixed with our fluids, vitiate their crasis and circulation, and induce a laxity of the fibres.

VI. And, indeed, (to speak more pointedly,) these effluvia, since they are compounded of salino-aqueous and sulphuric earthy fragments, render the atmosphere more thick and acrid. The apertures of the skin, skull, lungs, gullet, stomach, intestines, glands and vessels, being all in contact with them, are by degrees subjected to small obstructions and slight irritations, with atony. In consequence of these changes, those noxious, or, at least, useless corpuscles, which ought to

perspire from our bodies, are in a great degree prevented from escaping, (a symptom of which is the sudden vitiation of colour, and the immediate lassitude experienced by new-comers,) and degenerating by retention, and by being mingled with extraneous particles, are poured back upon the blood, the præcordia, and the other viscera. Here they increase and accumulate, until they overcome the natural powers of the fluids and solids, and kindle up a fever, attended by the symptoms that usually accompany febrile distempers of camps and pestilential ailments.

VII. It has been observed that a marshy atmosphere excites disease in two ways: that is to say, by its thickness and its acrimony. These are now taken as data. By the former of these qualities is produced languor and lassitude in the solids; and in the fluids a prolific principle, causing a proneness of all the blood to coagulation, eruptions, thirst, roughness of the tongue and fauces, comatose affections, parotids, and other symptoms, manifesting themselves in the course of the disease; by the latter, somewhat of the same irritation is produced in the fibres of the solids; whence spasms in the bowels, vomitings, convulsions and delirium, very familiar to such distempers, take their rise and increase.

VIII. We postpone, however, an evolution and explanation of the whole series of symptoms that occur in febrile diseases, of a marshy origin. These will be illustrated in our second book, by various cases of these sorts of fevers. For, example points a shorter road to truth than precept does.

CHAPTER XVI.

Showing that multitudes of Insects are bred in Marshes, and diffused through the surrounding air in the form of Organic effluvia.

I. Hitherto we have treated of the particles which were emitted by the various corrupting bodies with which marshes abound. These were partly abraded and partly exhaled by the power of heat, and thus contaminated the air we breathe. We shall now relate what we have discovered concerning a verminous cause of fevers. Though this may not amount to much, it is the result of very laborious research.

II. As the groundwork of our reasoning, we must not omit, (though it has been already cursorily stated in Chap. 10 and 11,) that observation fully proves the multitude of insects which nestle in marshes; and these do not only contain the creatures

which are observed every where, such as toads, frogs, and other animals known to our predecessors, such as flies, may-bugs, beetles, earwigs, spiders, leaches, water-witches, and many more of that kind, but also that most troublesome crysalis, called the moschetto. The species of culex is called by Virgil the offspring of moisture ; and Politian observes, that, like Venus, it is produced by fruitful waters. This insect most readily propagates and multiplies in the open air, and even in chambers during the hot season, amidst stagnant waters. On these, and similar insects, much has been noted by Leeuwenhoeek in his Epistles, where he adds, *that waters contain some animals of so small a size, that several hundreds of them taken together are not as large as a grain of sand.*

III. From Grecian history we learn that prodigious swarms of moschettos were engendered in marshes. For it is told by Pausanias, that the Mæander, a muddy kind of stream, having had its mouth obstructed up by alluvial matter, so that its waters could not vent themselves into the sea, was so choaked up, that it formed a marsh near the city of Myon. From this there proceeded such innumerable clouds of moschettos, that the inhabitants were afflicted and tormented beyond all endurance ; and were obliged finally to abandon their town and country seats, and move off in a body to Miletus. To avoid these insects, the Conopœum was invented by the Egyptian soldiers, who were obliged to make stationary encampments in the neighbourhood of marshes ; though they have been reprobated by Horace.

IV. A very wide field for philosophical curiosity opens to us, on contemplating the origin and metamorphosis of this insect. We shall, therefore, subjoin some facts concerning it, which it may not be useless to know. Moschettos are the *imagines* of those worms which are accustomed during summer to swim in great numbers, and with incredible swiftness, through waters stagnating in the open air. A figure of this insect, as it lives in water, shaped almost like an eel, and with its head, breast, and tail furnished with horns ; may be seen in Swammerdam's history of insects. And it is a matter of some surprize that Pliny, without the aid of a microscope, observed both the figure of the crysalis changed into a moschetto, and of the structure (too small for description) of each of the parts. He, thereupon, did not hesitate to say, that the weapon of this creature, although too slender for examination, was so constructed by nature, *as to be sharp for gaining an entrance, and hollow for the transmission of blood.*

V. These creatures possess wonderful fertility ; for, after they have hatched out and become perfect insects, they lay

their eggs in stagnant waters as in their proper nest. Peter Sangallus saw this with his own eyes, and wrote an account of it to Francis Redi. From this, which takes place in a small phial where the experiment is made, within a chamber, some adequate idea may be formed of that incredible number of insects which exists in the open air, and the great recesses of marshes. In these latter, besides the quantities deposited there by the parent insects, a vast body of eggs is brought by the morning dew and rains.

VI. On this subject it would be improper to withhold my own observations; for these go a great way toward explaining the history of the insects, as well as enriching this treatise on the noxious exhalations of marshes. I have been fortunate enough to make many discoveries on the origin, metamorphoses and other phenomena of moschettos.

VII. And, first, if at midsummer, two phials of nucerine water be taken, and one be exposed to the air, and the other be hermetically sealed, the former will soon be filled with little worms, which, rising to the top, burst their skins, and turn to moschettos, while the latter (which I still keep to verify the fact,) has remained many years perfectly free from every appearance of worms. So true is it, that moschettos flying through the air, lay their eggs in stagnant waters; which, as has been hinted before, are their proper recipients.

VIII. It must not, however, be here dissembled, that rain water, kept during the summer in an open vessel, is filled with moschettos much sooner than any other kind of water; because the eggs of these insects, exhausted of their venom by the scorching heat of the sun, and thereby rendered very light, are more readily wafted about by the wind; and thence they are brought back to the earth by the falling rains.

IX. Secondly. I have seen, as well as the illustrious Blanchini, that certain roundish bodies of a dark colour, fell to the bottom of the vessel containing the crysalis of moschettos. Some of my companions supposed these to be eggs, while others deemed them grains of sand. But, in reality, they were nothing more than the fœces of these aquatic creatures. The mass of these excrementitious discharges from the myriads of the crysalides inhabiting the marshes, must be very considerable, forming a thick and fœtid layer of dung at the bottom of the water.

X. Thirdly. I observed that the worms while kept in an open phial, moved about with great agility, and devoured each other like fishes; but on stopping the mouth of it with wax, they soon became still, whence it appears that all ani-

mals derive from the atmosphere something that keeps their vital springs in motion.

XI. Fourthly. That no doubt might remain that the eggs were both deposited in marshes, and carried thither by the winds, I instituted the following experiment: Take flannel, cotton, or cloths, at any time during summer or autumn, about twenty palms in length, and let a part of it be covered with a cerecloth, and folded up. Unfold the other portion, and expose it freely to air blowing from the region where the marshes lie, or let it be exposed to the east. On the following day, let both pieces of cloth be removed from the marshy spot, be rolled up in a wrapper, and be laid aside for a week in one corner of the house. Then let the two parcels of cloth be unfolded and examined, the observer will see and admire, if he assists his eyes with a microscope, the part which lay unfolded, and received the effluvia from the fens without impediment, full of worms differently shaped, and of very minute eggs, like nits, mostly of an ash colour. Some of them are top shaped on one side, and almost spherical on the other; and others, again, are almost oval. If those that are top-shaped, and resemble the eggs of snails, be inspected, the worms they contain may be seen to turn to perfect insects. But the portion of cloth which had been prevented by its covering from being infected with marshy effluvia, will be found to contain neither worms nor eggs. This argument appears conclusive in proof of the eggs of insects being dispersed with the other effluvia of marshes in every direction, but especially to leeward, where they, even when we do not see them, alight on airy, slimy, and porous bodies, and are detained by them. In due time, (provided the requisite moisture is not wanting,) the young, after sufficient fostering as in a nest, are hatched, and put into a condition to grow.

XII. It therefore appears from experiment, that extremely minute insects are bred in marshes, whence, after the manner of inanimate effluvia, they escape into the atmosphere, and are scattered in all directions. Which was to be demonstrated.

CHAPTER XVII.

The organic and animated Effluvia of Marshes are admitted into those cavities of our bodies which are in contact with the ambient and influent air.

I. There is a free and ready passage from the organic effluvia of a marsh to the incumbent air. There is also an open

and easy entrance for them, directly or remotely, into those cavities of the human body which, although they are internal, have a connection with the external air. For this reason, they are said to have external surfaces, although they are internal parts.

II. And in the first place, concerning the aerial fluid, which we alternately breathe through the mouth and nostrils, into the throat and lungs. Although worms and eggs seem incapable of transmission through the pores of the skin, unless through an open wound; yet, there is nothing to oppose the entrance of corpuscles of this kind into holes of greater diameter than themselves. On this account it is, that not unfrequently, crumbs of bread, and fragments of bone, which are larger than any of these aerial insects, slip into the larynx and windpipe.

III. Again; these animated effluvia are commonly taken into the stomach much more evidently with the food and drink. For it has been shown, in a former chapter, that moschettos and other insects lay their eggs in water during the summer. Hence it can be comprehended, that in the neighbourhood of marshes, where there are so many sorts of them buzzing through the air, that the waters used by the inhabitants for drinking are filled with this animalcular spawn.

IV. Lastly; worms and their eggs may be taken with the food. We find that insects swarm thicker where food is preparing than in almost any other place. Allured by its sweetness, and by their own sense of hunger, they at once find a feast for themselves, and a provision for their posterity. Thus fruits, milk, bread, flesh, and every other kind of eatable thing, are overrun with vermin, especially in the vicinity of marshes; whence it comes to pass, that our alimentary supplies enter our bodies loaded with an accompaniment of these creatures.

CHAPTER XVIII.

Whether the animated effluvia of Marshes are injurious to human bodies, and if so, when and how.

I. Some are of opinion, that the animated effluvia when taken in with the food and drink, although they enter the stomach, are easily passed off by stool, without any harm either to the fibres or juices. I however undertake to prove, that although they may be harmless in the winter and spring, and even in places remote from the marshes, yet, that they are very injurious during summer and autumn, to those who in-

habit marshy places. To make this evident, two things must be premised.

II. First. The differences often observed between animals of the same species, according to the diversities of country and season, are to be well considered.

III. Every Italian knows, that Tarantulas do not every where induce the disease called the Dance of Saint Vitus, but chiefly in Apulia. Dogs do not run mad at all times of the year, but chiefly during the extremes of heat and cold. Serpents and lizards, as Pliny relates, bite fatally in Greece, while they creep innocently in Sicily; and hornets, that mostly inflict hurtless wounds, are reported to be highly pernicious while the plague rages. Athanasius Kircher gives an example of this: *A man during a plague at Naples, observing something at the window, went there, and was stung in the nose by a hornet: the sting was left sticking in the wound; the part swelled, and the tumefaction gradually increasing, and the poison penetrating into the vital parts, he died on the second day, of the plague.* Mercurialis had before told Kircher, that flies, during the prevalence of plague, saturated with the juices of the sick and the dead, and passing immediately after into the neighbouring houses, have at the same time infected the provisions with their nastiness, and given the contagion to those who ate them.

IV. Insects are therefore more or less injurious to us, according to their various sustenances, waters, difference of climate, the several sorts of cattle, birds, fruits and herbs, as respects their sapidity, healthiness, unwholesomeness, or noxiousness, and venom. Because, through their stings are injected into our bodies, and applied to our important organs, fluids charged with those particles which proceed from unwholesome and noxious food and air. It is, therefore, perfectly reasonable to suppose, that insects engendered and nourished in marshes should be worse than all others.

V. Secondly. It ought to be carefully weighed, that poisons of all kinds infused into our bodies by insects or animals of any kind, large enough to be seen, have their whole efficacy placed in a peculiar fluid; for bites and wounds merely open the way by which poison can communicate with the blood. Hence, a viper's tooth, unless it is wetted with its deadly venom, is harmless. On the contrary, a needle, whose wounds are mostly trifling, if its point is dipped in viperine poison, (as of old the Scythian darts were in some deadly juice,) kills as quickly as the viper itself. And, indeed, by far the greatest power of doing mischief by poisonous animals, inheres in the active fluid, or inorganic body

they inject. It is therefore fair to conclude, that all venomous animals, inasmuch as they injure by a blow or stroke, work their mischief almost wholly by the virtue and efficacy of their peculiar juice, and not by the mere tooth or sting. It, therefore, must not be deemed a paradox, if I state for certain that insects and venomous animals, though not discernible but by the microscope, do not destroy by their mere bites and wounds, by infusing through their bites and wounds into our vessels a poisonous fluid, which, although elaborated in an organic body, is nevertheless itself an inorganic substance. Therefore, when it is made apparent that marshes emit, from the diversified mass of putrifying materials they contain, deadly molecules during the summer season; it follows naturally, that whether these lethiferous particles are diffused through the air at large, and applied to our bodies as inorganic effluvia, or brought home to our constitutions by the insects themselves, they induce death in one and the same way; to wit, by infusing into our fluids, and mingling with them a liquor totally averse and hostile to the composition and motion of the lymph, blood, and spirits.

VI. These matters being explained, the principal argument on the question is to be stated: that is to say, in what properly consists the deleterious quality of the animated effluvia issuing from marshes? It appears tolerably evident, that these organic and living exhalations, of which the fens are so prolific, torment us in three different modes: 1. By their actual irritation and wounds; 2. What is yet worse, by mixing their depraved juices with ours; and, 3. By nourishing and fattening the native *Lumbrici*.

VII. Nobody can entertain a doubt of their irritation and wounds, who ever passed but a day near the marshes. For he would be very glad to take his departure from them, by reason of their intolerable bites and bloodsuckings. Now, such irritations and wounds, considered apart from the venom infused, prevent sleep, disturb the course of the circulation, and alter the nervous sensibility, even among the inhabitants, to such a degree that they add, in no inconsiderable degree, to the mischief-working power of the breezes fraught with inorganic vapours.

(To be continued.)